APPENDIX A

UNITED STATES COURT OF APPEALS, NINTH CIRCUIT

Nos. 03-17125, 03-17153, 03-17169.

UNITED STATES OF AMERICA,
Plaintiff,

and

DEPARTMENT OF TOXIC SUBSTANCES CONTROL, STATE OF CALIFORNIA,
Plaintiff-Appellant,

v.

BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY, as successor in interest to the Atchison, Topeka & Santa Fe Railway Company; UNION PACIFIC TRANSPORTATION COMPANY, as successor in interest to the Southern Pacific Transportation Company; SHELL OIL COMPANY,
Defendants-Appellees.

UNITED STATES OF AMERICA,
Plaintiff-Appellant,

and

DEPARTMENT OF TOXIC SUBSTANCES CONTROL, STATE OF CALIFORNIA,
Plaintiff,

BURLINGTON NORTHERN & SANTA, FE RAILWAY COMPANY, as successor in interest to the Atchison, Topeka & Santa Fe Railway Company; UNION PACIFIC TRANSPORTATION COMPANY, as successor in

interest to the Southern Pacific Transportation Company; SHELL OIL COMPANY,

Defendants-Appellees.

UNITED STATES OF AMERICA; DEPARTMENT OF TOXIC SUBSTANCES CONTROL, STATE OF CALIFORNIA,

Plaintiffs-Appellees,

v.

BURLINGTON NORTHERN & SANTA FE RAILWAY COMPANY, as successor in interest to the Atchison, Topeka & Santa Fe Railway Company; UNION PACIFIC TRANSPORTATION COMPANY, as successor in interest to the Southern Pacific Transportation Company,

Defendants,

and

SHELL OIL COMPANY,

Defendant-Appellant.

Argued and Submitted Sept. 12, 2005.
Submission Withdrawn Sept. 14, 2005.
Resubmitted March 16, 2007.
Filed March 16, 2007.
Amended Sept. 4, 2007.
Second Amendment March 25, 2008.

OPINION

BERZON, *Circuit Judge*:

A now-defunct company, Brown & Bryant, Inc. (B & B), owned and operated a facility at which toxic chemicals were stored and distributed. Part of the land on which the chemical operation was located

was owned by two railroad companies (the Railroads), and some of the chemicals used by B & B were supplied and delivered to the facility by Shell Oil Company (Shell). Because toxic chemicals remaining at the facility threatened groundwater and may continue to do so in the future, the United States Environmental Protection Agency (EPA) and the State of California's Department of Toxic Substances Control (DTSC) spent a considerable amount of money to clean up the site and may need to spend more in the future. The two agencies sought to recover these response costs under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601 9675,[1] (CERCLA), but the district court held the Railroads and Shell liable for only a minor portion of the total cleanup costs. B & B was defunct by that time, and so could not contribute to the cleanup costs. The agencies were thus left holding the bag for a great deal of money.

Seeking to hold the Railroads and Shell jointly and severally liable for the entire judgment, the agencies appeal. Shell cross-appeals, claiming that it was not an "arranger" under CERCLA, § 9607(a)(3), and therefore is not a party on whom any cleanup liability can be imposed. We reverse the portion of the judgment that declined to impose full joint and several liability on the Railroads and Shell and affirm the portion of the judgment that imposed liability on Shell as an arranger.[2]

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[1] Unless otherwise noted, all statutory citations are to Title 42 and the 2000 edition of the U.S.Code.

[2] The Railroads have requested judicial notice of the EPA proceedings concerning their suit for reimbursement from the government and of the stay of those proceedings pending the

I. Background

Beginning in 1960, B & B operated an agricultural chemical storage and distribution facility in Arvin, California on a 3.8-acre parcel of land (the B & B parcel). In 1975, B & B's agricultural chemical distribution business outgrew that parcel, and B & B began leasing a 0.9-acre parcel of land adjacent to its own parcel. The 0.9-acre parcel (the Railroad parcel) was jointly owned by the Railroads—Atchison, Topeka & Santa Fe Railroad Co., the predecessor in interest to Burlington Northern & Santa Fe Railway Co., and Southern Pacific Transportation Co., the predecessor in interest to Union Pacific Transportation Co. B & B used the Railroad parcel principally to park fertilizer rigs.

The Railroad parcel comprised the western portion of the Arvin site.[3] Directly to the east of the Railroad parcel sat B & B's warehouse. The Railroad parcel, like the rest of the Arvin site, was graded toward a drainage pond on the B & B parcel.

B & B used the Railroad parcel as an integral part of its overall agricultural chemical facility. From its facility B & B sold local growers agricultural chemical products produced by various manufacturers. In particular, B & B purchased, received delivery of, stored on the Arvin site, and distributed two Shell-produced agricultural chemicals: the soil fumigants

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determination of joint and several liability in this case. These proceedings do not " 'have a direct relation to matters at issue.' " *United States ex rel. Robinson Rancheria Citizens Council v. Borneo, Inc.*, 971 F.2d 244, 248 (9th Cir.1992) (citation omitted). We therefore deny the Railroads' request for judicial notice.

[3] We refer to the B & B and Railroad parcels together as the "Arvin site."

D-D and Nemagon. D-D and Nemagon—members of a class of chemicals called nematocides—are designed to kill nematodes, microscopic worms that attack the roots of crops. Nematocides work by penetrating the soil and then dispersing. B & B also stored on the Arvin site dinitro (dinoseb) weed killer, purchased from Dow Chemical Company.

During the 1960s and 1970s, Shell strongly encouraged its customers, including B & B, to purchase D-D in bulk, a policy requiring customers to maintain large storage tanks. Shell delivered the bulk D-D to B & B "FOB Destination" via common carrier trucks.[4] When the trucks carrying D-D arrived at the Arvin facility, the contents of the trucks were transferred to B & B's large tanks by hoses.[5] The process was quite messy, with frequent spills.

To apply D-D to growers' fields, B & B used rigs loaded with the chemical. The rigs were stored on the Railroad parcel, as were bulk containers of dinoseb and, occasionally, empty fertilizer cans. Chemicals also reached the Railroad parcel through water flow from the B & B parcel.

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[4] "FOB Destination" means "free on board" and "when the term is F.O.B. the place of destination, the seller must at his own expense and risk transport the goods to that place and there tender delivery of them." U.C.C. § 2-319(1)(b) (2003).

[5] Shell was deeply involved in the delivery process: The district court found that Shell determined and arranged for the means and methods of delivery of D-D to the Arvin plant and detailed loading and unloading procedures. It also found that the trucking companies with which Shell contracted for delivery did the transfers for most of the relevant period. It was only in the early 1980s that Shell dictated that B & B personnel should instead do the unloading.

In 1978, after a windstorm destroyed the bulk D-D storage tank used to store Shell D-D, B & B began using converted stainless steel milk trailers to store the bulk D-D. The chemical, which is highly corrosive and eats through steel, can cause leakage in steel tanks only a few years old. B & B kept these leak-prone tanks all over the Arvin facility, including on the Railroad parcel.

D-D, when it leaks, evaporates quickly if exposed to air but is highly soluble in water. When D-D infiltrates the ground, it moves through the soil by molecular diffusion, dispersing in all directions. A slight pull from gravity, however, makes the chemical a bit more likely to flow downward into groundwater than laterally through the soil. Dinoseb, similarly, tends to move to the groundwater table if there is water movement in that direction. No toxic chemicals can reach the groundwater level currently used as a source of drinking water because of an impermeable layer of soil. The next highest level, however, is a potential source of drinking water, and contamination can reach that level.

After more than twenty years of leakage and dissemination of hazardous materials, the DTSC in 1983 found B & B in violation of several hazardous waste laws. The EPA investigated separately and found evidence of substantial soil and groundwater contamination at B & B's Arvin facility. The EPA and DTSC (the Governments) began to remedy the contamination pursuant to their cleanup authority under CERCLA, incurring substantial remediation costs. In 1991, the EPA ordered the Railroads to take specific preventative steps on the Railroad parcel, including installing groundwater monitoring wells.

None of the contamination requiring immediate remediation was on the Railroad parcel.

In 1992, the Railroads filed an action against B & B and certain of its principals for contribution for costs incurred in the EPA-ordered cleanup. Four years later, the Governments each filed CERCLA actions against B & B, the Railroads, and Shell for reimbursement of their investigation and cleanup costs.[6] The district court consolidated the three cases and, after a twenty-seven day bench trial, issued an exceedingly detailed 185-page Findings of Fact and Conclusions of Law, thereafter slightly amended.[7]

The district court found the Railroads liable as owners of the Arvin facility and as persons who "at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of." § 9607(a)(1), (2). Shell was held liable as a "person who . . . arranged for disposal ... of hazardous substances." § 9607(a)(3). Turning to whether the Railroads and Shell were liable for all or only a portion of the cleanup costs, the district court found that the harm to the Arvin site was capable of apportionment and proceeded to apportion it. The Railroads and Shell had, by acknowledging no liability at all, taken what the district court termed a " 'scorched earth,' all-or-nothing approach to liability," and so provided little assistance on the apportionment issue. The district court nonetheless proceeded to "perform the equitable

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[6] The relevant statutory sections covering contribution and reimbursement actions, § 9613(f) and § 9607, are quoted later in this opinion.

[7] Quotations from and discussion of the district court's ruling in this opinion concern the district court's Amended Findings of Fact and Conclusions of Law unless otherwise noted.

apportionment analysis demanded by the circumstances of the case."

For the Railroads, the court multiplied three proportions: (1) the percentage of the overall site that was owned by the Railroads, 19.1%;[8] (2) the percentage of time that the Railroads leased the parcel in relation to B & B's total operations, 45%;[9] and (3) the fraction of hazardous products attributable to the Railroad parcel, 66%.[10] This calculation resulted in a determination of 6% liability. Then, to account for any "calculation errors," the district court assumed 50% error and raised the Railroads' proportion of the total liability to 9%.

For Shell, the district court approximated the percentages of leakage from various activities attributable to Shell and multiplied them together to set Shell's proportion of the total liability at 6%.[11] Shell was also assigned, in the contribution action,

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[8] 0.9 acres / 4.7 acres = 0.191 (19.1%).

[9] B & B began operations in 1960. The Railroad parcel was leased starting in 1975. In 1988, B & B ceased its operations at Arvin. Thus, the Railroad parcel was part of the Arvin site for 13 of 29 years, or 45% of the time B & B operated the facility.

[10] There were three pertinent chemicals: D-D, Nemagon, and dinoseb. The district court found that although there was some D-D contamination attributable to the Railroad parcel, that "slight contamination is offset by the fact that the [Arvin] Site is graded towards the southeast pond [on the B & B parcel] and the levels of chemical contamination on the B & B parcel are substantially higher than the reported detections on the Railroad parcel." On that reasoning, the district court removed all D-D from the equation.

[11] B & B, albeit insolvent, was assigned 100% joint and several liability.

6% of the costs incurred by the Railroads in their cleanup effort.[12]

DTSC and the EPA timely appealed the district court's judgment. Shell timely cross-appealed the finding that it was liable as an "arranger" under CERCLA.

II. Standards of Liability Under CERCLA

CERCLA was enacted in 1980 to provide for effective responses to health and environmental threats posed by hazardous waste sites. *See generally Mardan Corp. v. C.G.C. Music, Ltd.*, 804 F.2d 1454, 1455 (9th Cir.1986). Under CERCLA, state and federal governments can first begin the cleanup of toxic areas, *see* § 9604(a)-(d), and then sue potentially responsible parties (PRPs) for reimbursement, *see* § 9607(a). A key purpose of this scheme is "shift[ing] the cost of cleaning up environmental harm from the taxpayers to the parties who benefited from the disposal of the wastes that caused the harm." *EPA v. Sequa Corp. (In the Matter of Bell Petroleum Servs., Inc.)*, 3 F.3d 889, 897 (5th Cir.1993) (citing *United States v. Chem-Dyne Corp.*, 572 F.Supp. 802, 805-06 (S.D.Ohio 1983)).

In accord with this purpose, CERCLA creates a system of strict liability. Under its provisions, parties can be liable for cleaning up toxic chemicals if they fit into one or more of the four PRP categories set out in § 9607(a):

> (1) the owner and operator of ... a facility,

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[12] The Railroads do not challenge the percentage of liability assigned to Shell.

(2) any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of,

(3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person . . ., and

(4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities....

A "facility" is defined in § 9601(9)(B) as "any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel."[13] The statute's basic liability provision, in turn, provides that "subject only to the defenses set forth in subsection (b) of this section [PRPs shall be liable for]—(A) all costs of removal or remedial action incurred by the United States Government or a State or an Indian tribe not inconsistent with the national contingency plan . . . ." § 9607(a). Thus, PRPs can be responsible for the costs of cleaning up hazardous waste sites without any finding that they were negligent *or* that they caused the contamination,

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[13] The district court found that the entire Arvin site, including the Railroad parcel, was a single facility for the purposes of § 9607. The Railroads do not appeal that finding.

unless they can establish the third-party defense set out in § 9607(b)(3).[14]

A. Validity of Apportionment

CERCLA does not address the question whether, as between PRPs who are liable for cleanup costs, liability is *joint* and *several*—meaning that each PRP responsible for all cleanup costs at a facility is liable for such costs—or *severable*—meaning that cleanup costs at a single facility can be apportioned among PRPs on some basis.

In this circuit, liability is joint and several when the harm is indivisible. *Fireman's Fund Ins. Co. v.*

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[14] Section 9607(b) reads:

> There shall be no liability under subsection (a) of this section for a person otherwise liable who can establish by a preponderance of the evidence that the release or threat of release of a hazardous substance and the damages resulting therefrom *were caused solely by*—
>
> ...
>
> (3) an act or omission of a third party other than an employee or agent of the defendant, or than one whose act or omission occurs in connection with a contractual relationship, existing directly or indirectly, with the defendant (except where the sole contractual arrangement arises from a published tariff and acceptance for carriage by a common carrier by rail), if the defendant establishes by a preponderance of the evidence that (a) he exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous substance, in light of all relevant facts and circumstances, and (b) he took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions.

(Emphasis added). Section 9607(b) also provides defenses for "an act of God" and "an act of war." § 9607(b)(1), (2).

City of Lodi, 302 F.3d 928, 945 (9th Cir.2002); *see also Carson Harbor Vill., Ltd. v. Unocal Corp.*, 270 F.3d 863, 871 (9th Cir.2001) (en banc). Thus, a defendant "may be held fully liable for the entire clean-up costs at a site despite the fact that the defendant PRP was in fact responsible for only a fraction of the contamination." *Fireman's Fund*, 302 F.3d at 945.

We have also referred in general terms to the possibility of apportioning liability. *See id.* (noting the use of "federal common law principles" of apportionment); *Carson Harbor Vill.*, 270 F.3d at 871 (stating that once liability has been found, "the defendant may avoid joint and several liability by establishing that it caused only a divisible portion of the harm"). Yet, in none of our cases has there been an actual dispute regarding whether liability should be apportioned among the liable PRPs.[15] This case squarely presents that question. To determine whether the district court was correct to apportion liability in this case, we thus must address, initially, the general propriety of severability.[16] In line with

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[15] The major cases addressing division of PRP liability under CERCLA in the Ninth Circuit instead have been contribution cases among PRPs, decided after joint liability was established, *see, e.g., Carson Harbor Vill.*, 270 F.3d at 871; *Pinal Creek Group v. Newmont Mining Corp.*, 118 F.3d 1298, 1301 (9th Cir.1997), or have addressed a different issue entirely, *see, e.g., Fireman's Fund*, 302 F.3d at 945 (analyzing the possibility that CERCLA preempts state laws).

[16] DTSC argues that the apportionment question is not properly before us because it was not properly raised in the pretrial order, but we do not agree. To preserve a claim, a party must put forward a position in the pretrial statement in a manner sufficient to put the opposing party on notice and allow the trial court to consider its merits. *See Cripe v. City of San Jose*, 261 F.3d 877, 886 n. 9 (9th Cir.2001) (refusing to hold that

every circuit that has addressed the issue, we hold that apportionment is available at the liability stage.

In so ruling we rely, as have the other circuits that have analyzed the issue, on a seminal case decided in 1983 in the Southern District of Ohio, *Chem-Dyne*. After reviewing the evolution of the statute, *Chem-Dyne* concluded that liability under § 9607(a) may be joint and several even though the statute does not expressly so provide. *Chem-Dyne*, 572 F.Supp. at 810. Suggesting that Congress intended to leave the matter to the usual common law rules, adjusted to CERCLA as necessary, *Chem-Dyne* held that courts should look to the Restatement (Second) of Torts, as well as to other sources of federal common law, for the principles of joint and several liability applicable under CERCLA. *See id.* at 809-10. Later, circuit court cases endorsed this approach. *See Chem-Nuclear Sys., Inc. v. Bush*, 292 F.3d 254, 259-60 (D.C. Cir.2002); *United States v. Hercules, Inc.*, 247 F.3d

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defendants had waived an affirmative defense by mislabeling it, because the court and plaintiffs were on notice of the real issue); *Arizona v. Components Inc.*, 66 F.3d 213, 217 (9th Cir.1995) (noting that argument must be raised sufficiently for the court to rule on it). Notice to the district court is not an issue in this case, as the final decision addresses apportionment. While the Governments claim to have been unaware that they needed to address the apportionment issue, their assertion is not supported by the record. Both the Railroads and Shell directly addressed the apportionment issue in their pretrial orders. The Railroads "den[ied] that they are jointly and severally liable for the response costs claimed by the Government" but argued that, if liable, they should only be responsible for that fraction of the total mass of groundwater contamination proven to be traceable to their parcel. Shell noted that joint and several liability is not mandatory and cited cases regarding apportionment. As a result, we conclude that the issue of apportioning liability was not waived and is properly before us.

706, 717 (8th Cir.2001); *United States v. Township of Brighton*, 153 F.3d 307, 318 (6th Cir.1998); *Bell Petroleum*, 3 F.3d at 895-96;*United States v. Alcan Aluminum Corp. (Alcan-PAS)*, 990 F.2d 711, 721-22 (2d Cir.1993); *United States v. Alcan Aluminum Corp. (Alcan-Butler)*, 964 F.2d 252, 268-69 (3d Cir.1992); *United States v. Monsanto Co.*, 858 F.2d 160, 171-72 (4th Cir.1988).

As *Chem-Dyne* persuasively recounts, the history of § 107(a) of CERCLA, 42 U.S.C. § 9607(a), indicates that although Congress declined to mandate joint and several liability, it did not intend by doing so "a rejection of joint and severable liability." *Chem-Dyne*, 572 F.Supp. at 808. Instead, recognizing the difficulties inherent " 'in prescribing in statutory terms liability standards which will be applicable in individual cases,' " *id.* at 806 (quoting 126 CONG. REC. S14964 (Nov. 24, 1980) (remarks of Sen. Randolph)), Congress meant "to have the scope of liability determined under common law principles, where a court performing a case by case evaluation of the complex factual scenarios associated . . . will assess the propriety of applying joint and several liability on an individual basis," *id.* at 808.We agree with this account of Congress's intent and hold that apportionment can be appropriate under CERCLA.

B. Standards for Apportionment

Because we hold that apportionment is available at the liability stage in CERCLA cases, we must determine the appropriate standards for determining when apportionment is available and, when it is, how to ascertain the proper division of damages among defendants. Again, we draw on the experience of our sister circuits.

The circuits that have addressed these questions have looked to common law principles of tort in general, and the Restatement in particular, for guidance as to when and how to impose joint and several liability under § 9607(a). We agree that this approach is proper and adopt it here. We also follow *Chem-Dyne* and all of the courts of appeals that have addressed the question in holding that the resulting standard must be a uniform federal rule. *See, e.g., Aviall Servs., Inc. v. Cooper Indus., Inc.*, 312 F.3d 677, 684 (5th Cir.2002) (holding that apportionment of CERCLA liability "is . . . a matter of federal common law"), *reversed on other grounds by* 543 U.S. 157, 125 S.Ct. 577, 160 L.Ed.2d 548 (2004); *United States v. Burlington N.R. Co.*, 200 F.3d 679, 697 (10th Cir.1999) (same); *Township of Brighton,* 153 F.3d at 329 (same); *Monsanto Co.*, 858 F.2d at 172 (same). As *Chem-Dyne* noted, the legislative history of CERCLA supports such an approach, as does its policy favoring national uniformity so as to discourage "illegal dumping in states with lax liability laws." *Chem-Dyne*, 572 F.Supp. at 809.[17]

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[17] The parties here have assumed that the apportionment standard must be one of uniform federal common law. As stated above, every federal circuit to address the issue, including those decided after *O'Melveny & Myers v. FDIC*, 512 U.S. 79, 114 S.Ct. 2048, 129 L.Ed.2d 67 (1994), and *Atherton v. FDIC*, 519 U.S. 213, 117 S.Ct. 666, 136 L.Ed.2d 656 (1997), has shared that understanding. Although *Atchison, Topeka & Santa Fe Ry. Co. v. Brown & Bryant, Inc.*, 159 F.3d 358, 362-64 (9th Cir.1997), questioned whether *O'Melveny & Myers* and *Atherton* upset Ninth Circuit law with regard to the adoption of uniform federal common law regarding successor liability under CERCLA, very different considerations govern with respect to apportionment. In *Atchison*, resolution of the question of successor liability would resolve *who* was liable under CERLA, an inquiry with roots in state corporate law. Here, the inquiry diverges from

The question, then, is what the uniform federal law should be. Once again, all the circuits that have addressed this question have followed *Chem-Dyne*, holding that the appropriate starting point for a common law rule of apportionment applicable to CERCLA cases is Section 433A of the Restatement of Torts. *See Hercules*, 247 F.3d at 716 & n. 9, 717 (noting that courts support the divisibility doctrine as borrowed from the Restatement); *Bell Petroleum*, 3 F.3d at 895 (relying on the Restatement); *Chem-Dyne*, 572 F.Supp. at 810 (establishing this method). We agree that harm may be apportioned when "there exists a reasonable basis for divisibility" of a single harm or when several "distinct harms" are present. *Hercules*, 247 F.3d at 717.[18]

Because CERCLA's statutory liability scheme differs from the common law in important respects,

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state law completely. As we explain in this section, the reach of CERCLA liability is *sui generis*, so there is no state law directly applicable. The resulting apportionment analysis therefore requires a similarly unique set of considerations, married to the statute's functions and purpose.

[18] We of course agree with our sister circuits that, if adequate information is available, divisibility may be established by "volumetric, chronological, or other types of evidence," *Hercules*, 247 F.3d at 719 (citing *Bell Petroleum*, 3 F.3d at 895-96), including appropriate geographic considerations, see *United States v. Township of Brighton* ("Brighton II "), 282 F.3d at 919-20 (6th Cir.2002); *Bell Petroleum*, 3 F.3d at 903-04. We hold only that, in this case, Shell and the Railroads failed to show that "expert testimony and other evidence establishes a factual basis for making a reasonable estimate that will fairly apportion liability." *Bell Petroleum*, 3 F.3d at 903. "[A]pproaches to divisibility will vary tremendously depending on the facts and circumstances of each case," *Hercules*, 247 F.3d at 717, and approaches that were inappropriate or inadequately supported in this case may be available in other circumstances.

however, our sister circuits have recognized that its principles must be somewhat modified to fit the CERCLA context. *See, e.g., Bell Petroleum,* 3 F.3d at 902 ("Restatement principles must be adapted, where necessary, to implement congressional intent with respect to liability under the unique statutory scheme of CERCLA."); *Hercules*, 247 F.3d at 717 (The Restatement is "the starting point . . . . [but] only to the extent that it is compatible with the provisions of CERCLA."). We concur in this general conclusion and acknowledge, in particular, that there are two areas where the Restatement approach is a somewhat poor fit and requires slight modifications to ensure that its approach comports with the liability and remediation scheme of CERCLA. *First*, as we describe *infra*, there are important distinctions between causation as conceived in the Restatement and causation in the context of CERCLA. Unlike the Restatement's common law causation, CERCLA affixes liability based upon its PRP provisions, which define classes of liable parties based upon a party's statutorily-defined nexus to the contaminated site. And *second*, the concept of "harm" in the Restatement as actual injury does not correspond easily to CERCLA's priorities. Contamination and the cost of remediation are both relevant for the "harm" analysis under CERCLA. Finally, we recognize that the Restatement's emphasis on objective considerations to determine whether apportionment is justified in a given case comports with CERCLA's strict liability scheme. Equitable considerations may play a role in a later contribution action amongst liable parties, but not in an action such as this where the only relevant issue is whether there is a reasonable basis, founded in record evidence, to apportion damages amongst defendants.

1. Causation

Section 433A of the Restatement allows for apportionment of damages where "(a) there are distinct harms,[19] or (b) there is a reasonable basis for determining the *contribution of each cause* to a single harm." [20] RESTATEMENT (SECOND) OF TORTS § 433A(1) (1965) (emphasis added). CERCLA, however, does not require causation as a prerequisite to

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[19] Comment b of section 433A notes:

Distinct harms. There are other results which, by their nature, are more capable of apportionment. If two defendants independently shoot the plaintiff at the same time, and one wounds him in the arm and the other in the leg, the ultimate result may be a badly damaged plaintiff in the hospital, but it is still possible, as a logical, reasonable, and practical matter, to regard the two wounds as separate injuries, and as distinct wrongs. The mere coincidence in time does not make the two wounds a single harm, or the conduct of the two defendants one tort. There may be difficulty in the apportionment of some elements of damages, such as the pain and suffering resulting from the two wounds, or the medical expenses, but this does not mean that one defendant must be liable for the distinct harm inflicted by the other.

[20] Comment d of section 433A notes:

Divisible harm. There are other kinds of harm which, while not so clearly marked out as severable into distinct parts, are still capable of division upon a reasonable and rational basis, and of fair apportionment among the causes responsible. Thus where the cattle of two or more owners trespass upon the plaintiff's land and destroy his crop, the aggregate harm is a lost crop, but it may nevertheless be apportioned among the owners of the cattle, on the basis of the number owned by each, and the reasonable assumption that the respective harm done is proportionate to that number. Where such apportionment can be made without injustice to any of the parties, the court may require it to be made.

liability (except with regard to the third-party defense, *see* § 9607(b), not at issue here). Nonetheless, most of the leading cases on joint and several liability under CERCLA have addressed divisibility under § 433A(1)(b).[21] *See, e.g., Bell Petroleum*, 3 F.3d at 902-03; *Monsanto*, 858 F.2d at 172; *Chem-Dyne*, 572 F.Supp. at 810.

Notably, these cases often dealt with simpler facts than those we confront. *Chem-Dyne*, for instance, assumed a case quite different from this one. There, the court stated that "[t]ypically . . . there will be numerous hazardous substance generators or transporters who have disposed of wastes at a particular site." 572 F.Supp. at 810. It was in that context-that is, where the question was apportionment among defendants who all disposed of wastes themselves-that *Chem-Dyne* determined that courts could follow the divisibility principles of the Restatement and remain true to CERCLA. In a situation in which the several defendants are all polluters themselves, divisibility under the Restatement standard is indeed a relatively straightforward analysis, and one in which traditional causation concepts are useful. If the court can estimate with

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[21] The sections of the Restatement that courts have used to establish the rules of joint and several liability under CERCLA are found in the negligence division of the Restatement. As these courts recognize, CERCLA is a strict liability statute. *See, e.g., Hercules*, 247 F.3d at 716; *Township of Brighton*, 153 F.3d at 318. Because there is no comparable divisibility rule in the strict liability portion of the Second Restatement, courts have adapted the negligence rules to strict liability by declining to rely on the portion of the Restatement section that places an initial burden as to causation on the plaintiff. *Compare Hercules*, 247 F.3d at 717, *and Bell Petroleum*, 3 F.3d at 896, *with* RESTATEMENT (SECOND) OF TORTS § 433B(1).

some confidence the amount of waste that each defendant disposed of and has a basis for determining that the extent of contamination of the site is proportional to the amount of waste disposed of, then the Restatement approach to apportionment works nicely.

The situation here is different.[22] The three "responsible" parties are: the now-insolvent majority owner and operator of the site; the mostly absentee landlord of a portion of the site; and a seller of chemicals shipped to and stored at the site. Each party had an entirely different role in the contamination process, with overlapping effects, and not all "caused" contamination in any meaningful sense.

Most notably, PRP status premised on ownership of a facility does not require *any* involvement in the disposal of hazardous substances. Thus, to speak of a PRP "causing" contamination of its land simply by owning land on which someone else disposes of hazardous wastes is to indulge in metaphor. At the same time, to allow CERCLA defendants, especially landowner PRPs, to prove through traditional causation analysis that they were not entirely liable would be to undermine the premise on which the statute designated them as PRPs to begin with. CERCLA requires a *connection*—for example, that the PRP be a landowner "at the time of disposal," *see*

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[22] One commentator has noted that trying to apply the Restatement to CERCLA in most cases is like "pushing a round peg through a square hole. Traditional tort law principles falter in the CERCLA context because CERCLA is so unlike a typical tort law cause of action." Lynda J. Oswald, *New Directions in Joint and Several Liability Under CERCLA?*, 28 U.C. DAVIS L. REV. 299, 360 (1995).

§ 9607(a)(2)—but no further *causation*. The statute thus departs from Restatement principles by abjuring the traditional "causation" principles in favor of a nexus concept defined by its PRP provisions. Where, as here, the pertinent PRP status is as landowner, the landowner can establish divisibility by demonstrating a reasonable basis for concluding that a certain proportion of the contamination did not originate on the portion of the facility that the landowner owned at the time of the disposal. The arranger nexus is more straightforward, with a focus not on ownership of the facility but rather on the relevant, arranged disposals in light of other contamination at the facility.

2. Harm

A second difficulty that results from relying on tort principles in a scheme not based on tort law concerns the application of the term "harm," used in the Restatement, as applied to CERCLA. *See* RESTATEMENT (SECOND) OF TORTS § 433A. The CERCLA cost recovery section does not focus on "harm," but rather on "costs of removal or remedial action" and "necessary costs of response."[23] § 9607(a). Thus, when applying the Restatement in the context of CERCLA, the question becomes: What is the "harm" that we are attempting to divide?

There are three possible kinds of "harm" in actions for remediation costs under CERCLA: the initial disposal, the resulting contamination, and the costs

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[23] The statute also mentions "damages for injury to, destruction of, or loss of natural resources" and "costs of any health assessment or health effects study." § 9607(a)(C), (D). These provisions may be informative with regard to the nature of the harm in other cases but are not here applicable.

of remediating the contamination. Actual injury to individuals or to property, the usual "harms" in a tort suit, are *not* a pertinent consideration; the statute is concerned with averting future injury by remediating contamination, not with compensation for past injuries.

If the harm were the *disposal*, then divisibility based on volume of discharge by operators or by parcel would always make sense, because disposal occurs in specific amounts at specific places. If the harm were *contamination*, then some attempt would have to be made either to justify a direct correlation between disposal and contamination under the specific circumstances or to separate out the leakage that remained as contamination from leakage that either evaporated, was adequately diluted, or for other reasons did not remain on the property in toxic form.[24] If the harm is the *cost of remediation*, then divisibility would have to be based on the pro rata cost of cleaning up each defendant's contribution to the contamination. That pro rata cost will sometimes differ from the proportion of contamination caused by each defendant, because the cost of removing contamination can vary with geographical considerations, degree of toxicity, the means of extraction used for different toxic substances, or other factors.

In light of a CERCLA liability suit's central purpose—recovering the cost of eradicating contamination—we conclude that it is most useful for

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[24] In many instances, of course—as in *Chem-Dyne*—the various polluters will dispose of the same substance in the same location, so there will be a basis for assuming that each polluter's pro rata share of the hazardous waste disposed of and of the resulting contamination is the same. *See also Bell Petroleum*, 3 F.3d at 903.

purposes of determining divisibility to view the "harm" under CERCLA as the contamination traceable to each defendant. Disposal itself is not the focus of the statute, unless it results in contamination. And the cost of cleaning up the contamination is most analogous to the damages recovered in a tort suit, not to the injury on which liability is based.[25]

3. Equity

Because this case is one in which the harms are not distinct, apportionment must be under Restatement § 433A(1)(b) if it is to be allowed at all. That is, there must be a reasonable basis for determining the contribution of each PRP to the harm. While nothing in the statute directly addresses the question whether equitable factors are appropriate for purposes of apportioning liability among joint tortfeasors, all the other circuits that have addressed the issue have held that they are not. We again follow their lead.

In so holding, we begin from the fundamental difference between apportionment and contribution. Apportionment, which is the relevant question in this case, looks to whether defendants may avoid joint and several liability by establishing a fixed amount of damage for which they are liable. Section 433A of the Restatement speaks to this issue. Contribution is a

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[25] The cost of cleanup of different toxic substances or in different areas of the facility will often be a useful measure of the proportion of the *pertinent* contamination allocable to each defendant. That cost will depend upon factors such as which contamination was serious enough to merit remediation and how thoroughly the soil was contaminated in various areas. Thus, the "harm" allocation analysis may in some instances usefully focus initially on the proportion of costs associated with remedying various aspects of the contamination.

distinct concept. If there is insufficient evidence to support apportionment, jointly and severally liable PRPs may still seek to recover from each other in a later contribution action. *See, e.g.*, RESTATEMENT (THIRD) OF TORTS § 23(a) (2000) ("When two or more persons are or may be liable for the same harm and one of them discharges the liability of another by settlement or discharge of judgment, the person discharging the liability is entitled to recover contribution from the other, unless the other previously had a valid settlement and release from the plaintiff."). As we explain below, CERCLA permits equitable considerations to be taken into account in a contribution action amongst PRPs, but CERCLA's strict liability scheme does *not* permit equitable considerations to have any bearing in an action to determine whether defendants have presented sufficient evidence to apportion liability.

Section 9613(f), added to CERCLA in 1986, provides for contribution actions among PRPs once liability to the plaintiffs has been determined. That provision describes, quite generally, the considerations applicable in a contribution action for determining whether one PRP can collect from another a portion of the costs for which it has been held liable: "In resolving contribution claims, the court may allocate response costs among liable parties using such *equitable factors* as the court determines are appropriate." § 9613(f) (emphasis added).[26] In con-

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[26] Among the equitable factors used in CERCLA contribution cases are the so-called "Gore factors." *See Hercules*, 247 F.3d at 718. Those factors are derived from the amendment that then-Representative Gore introduced in 1980 to alleviate the harshness of mandatory apportionment, which at that time was a part of the bill. *See* 126 CONG. REC. 26782 (1980) (statement of Rep. Gore). Although these factors are appropriate in

trast, CERCLA contains no provision explicitly providing for initial apportionment of liability. And § 433A(1)(b) of the Restatement and the appended commentary concerning divisibility are silent as to equitable considerations.[27] As noted, this circuit heretofore has not addressed divisibility analysis. But the implication from our cases deciding § 9613(f) contribution issues is that the proper time to focus on such factors is *at the contribution phase*, not the liability phase. *See, e.g., Carson Harbor Vill.*, 270 F.3d at 871 (noting that the "contribution provision aims to avoid a variety of scenarios by which a comparatively innocent PRP might be on the hook for the entirety of a large cleanup bill"); *Pinal Creek*, 118 F.3d at 1301 ("A PRP's contribution liability will correspond to that party's equitable share of the total liability and will not be joint and several.").

Other circuits have been careful to delineate the difference between the equitable considerations pertinent to contribution under § 9613(f) and the objective considerations pertinent to divisibility under § 9607(a). *See Hercules*, 247 F.3d at 718; *Township of Brighton*, 153 F.3d at 318; *Bell Petroleum*, 3 F.3d at 901. As the Sixth Circuit has noted, divisibility

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contribution cases, they are not, for the reasons discussed in the text, appropriate considerations at the liability stage.

[27] The only mention of equity in Restatement § 433A is in comment h, regarding "[e]xceptional cases." Comment h suggests that in cases of insolvent defendants, when an "innocent plaintiff would be forced to bear the share of the loss due to the defendant from whom he could not collect damages," courts may refuse to allocate harm to avoid "injustice to the plaintiff." Because we determine that there is no reasonable basis for apportioning the defendants' harm, we do not reach the question of whether the considerations of comment h are applicable here.

analysis, unless carefully limited, has the potential to eviscerate the strict liability principles of CERCLA entirely, "because defendants who can show that the harm is divisible, and that they are not responsible for any of the harm" could whittle their liability to zero. *Township of Brighton*, 153 F.3d at 318. Additionally, as *Township of Brighton* also noted in rejecting a fairness-based approach, divisibility analysis is not an invitation to "split the difference" and come up with a "compromise amount." *Id.* at 319.

While it may seem unfair to hold a partial owner liable for all of the contamination cleanup costs, that perceived unfairness is the result of CERCLA's expansive statutory liability scheme. Assuring fairness among PRPs is the proper subject of the contribution stage, not of apportionment at the liability stage. *See United States v. Rohm & Haas Co.*, 2 F.3d 1265, 1280-81 (3d Cir.1993), *overruled on other grounds by United States v. E.I. DuPont De Nemours & Co.*, 432 F.3d 161, 162-63 (3d Cir.2005) (en banc). At the liability stage, CERCLA simply assigns liability to statutorily responsible parties so as to assure that, as between those with *some* connection to the contamination—and who have, it may be assumed, benefited from the contamination-causing process—and those with *none*, such as the taxpayers. Any court-created structure that would allow PRPs to whittle their share to little or nothing and leave the taxpayers holding the bag may seem more equitable to some PRPs but would violate the basic structure of the CERCLA statutory scheme. Because of such concerns, courts have generally refrained from using an equity-based allocation analysis, so as not to weaken further the strict liability principle basic to CERCLA.

We agree that while joint and several liability need not be universally applied, *see Bell Petroleum*, 3 F.3d at 897, the inquiry as to whether such liability is appropriate must focus strictly on whether there is a reasonable basis for apportionment, *see, e.g., id.* at 901-04. Consequently, in an action under § 9607(a), a court is not to look to equitable considerations, such as relative fault, in determining whether liability is to be joint and several or apportioned.

III. Analysis of Railroads' and Shell's CERCLA Liability

We now proceed to apply these fairly straightforward principles to the circumstances of this case. Here, the Railroads were found to be PRPs under § 9607(a)(2), as the owners of a "facility at which . . . hazardous substances were disposed of," and Shell was found to be a PRP under § 9607(a)(3), as a person who "arranged for disposal . . . of hazardous substances owned or possessed by such person." The first question we address is whether the Railroads and Shell are liable for *all* the cleanup costs at the Arvin site, or, as the district court held, only some of them. The second question, addressed later, is whether Shell is liable for *any* of the harm, as an "arranger."

A. Apportionment of Liability

1. Standard of Review and Burden of Proof

Because we have not heretofore faced a CERCLA apportionment issue directly, there is no Ninth Circuit precedent concerning the standard of appellate review for such an issue. Three circuits have addressed the question, and two separate approaches have emerged.

The Fifth and Eighth Circuits look first to whether there is a reasonable basis for apportioning the harm, an inquiry they consider a question of law reviewed de novo. *See Hercules*, 247 F.3d at 718-19; *Bell Petroleum*, 3 F.3d at 896, 902. These two circuits then examine, as a question of fact reviewed under the clearly erroneous standard, precisely how damages are to be divided. *See Hercules*, 247 F.3d at 718 (holding that "actual apportionment" of damages is a question of fact); *Bell Petroleum*, 3 F.3d at 896 (same).

In contrast, the Sixth Circuit considers divisibility as a whole a factual matter of causation, reviewed entirely under the clearly erroneous standard. *Township of Brighton*, 153 F.3d at 318 n. 13. This view, however, disregards a distinction between conceptual divisibility and actual allocation that we find both persuasive and useful. The latter inquiry can involve the resolution of credibility issues and of conflicting evidence, while the former ordinarily does not.

We believe the most appropriate approach, and the one we therefore adopt here, is the one adopted in *Hercules* and *Bell Petroleum*, with a refinement suggested by Judge Parker's dissent in *Bell Petroleum*. Judge Parker thought that the majority confused the distinction between the "*legal* burden that the single harm at issue caused is of a type capable of apportionment, and the *factual* burden of proving the amount of harm attributable to a particular party." *Bell Petroleum*, 3 F.3d at 909 (Parker, J., concurring in part and dissenting in part). We are not sure that there was any such confusion. Rather, an aspect of clear error review is the legal determination whether the party with the

burden of proof met that burden; if the party did not and the district court nonetheless ruled for it, then the district court clearly erred. *See Lloyd v. Schlag*, 884 F.2d 409, 415 (9th Cir.1989) (reviewing "whether the district court committed clear error by holding that [plaintiff] had not met his burden of proof"). Thus, although the harm may be *capable* of apportionment, the harm may not actually be *apportionable* in the particular case as a factual matter, given the evidence produced, because the party advocating apportionment has not come forward with the minimum showing needed to meet its burden of proof as to the proper division of liability.

We therefore proceed as follows: We inquire, *first*, whether the particular harm at issue in the case is theoretically capable of apportionment—i.e., whether it could ever be apportioned or whether it is, by nature, too unified for apportionment. That question is one of law, reviewed de novo. *Cf. Taisho Marine & Fire Ins. Co. v. M/V Sea-Land Endurance*, 815 F.2d 1270, 1274 (9th Cir.1987). *Second*, we review for clear error whether the defendant submitted evidence sufficient to establish a reasonable basis for the apportionment of liability, taking into account that the burden of proof is on the party seeking allocation, as well as the district court's actual division of liability.

There is no dispute here on the first, purely legal question—whether the harm is capable of apportionment. *See Bell Petroleum*, 3 F.3d at 896; *Chem-Dyne*, 572 F.Supp. at 810. Some of the contamination on the B & B site occurred before the Railroads' parcel became part of the facility. Only some of the toxic substances were stored on the Railroads' parcel, and only some of the water on the facility washed over the

Railroads' site. As to Shell, only some of the toxic substances spilled on the facility were sold by the company. The different toxic substances vary in their likelihood to leak and in the manner and speed in which they disseminate in ground water. So, conceptually, the contamination traceable to the Railroads and Shell, with adequate information, would be allocable, as would be the cost of cleaning up that contamination.

The questions, then, are whether the district court clearly erred in finding that the Railroads and Shell established a "reasonable basis" for apportionment, *Bell Petroleum*, 3 F.3d at 901, and whether, having so found, the district court properly apportioned the harm.

We recognize that the district court at one point stated that the Railroads failed to "meet their burden of proof" as to divisibility. But its overall ruling was necessarily to the contrary, as the court also stated that it "independently found [in the record] a reasonable basis for apportionment in spite of the parties[']] presentations." Thus, while the district court rejected both defendants' *theories* as to divisibility, it used record evidence it found persuasive to determine apportionment. Whether the district court was correct in this regard is, as we have noted, part of the review of the factual decision regarding apportionment, discussed hereafter. The burden of proof issue thus melds with the merits of the apportionment issue, rather than barring us from considering it.

2. The Railroads

As we have established, if apportionment is to be allowed under the Restatement approach, there must

be a reasonable basis for calculating the connection between the Railroads' PRP status and the relevant harms. Again, the harm we consider is the contamination on the Arvin site. Where, as for the Railroads, the PRPs' responsibility under the statute derives solely from their status as landowner, the PRPs can establish divisibility by demonstrating that discrete portions of the contamination did not originate on land they owned at the time of the toxic disposal.

Here, the district court's severability analysis—after 191 pages of an amended opinion that included over 80 pages of factual findings—ultimately relied on the simplest of considerations: percentages of land area, time of ownership, and types of hazardous products. Although we do not fault the district court's factfinding—its numbers are mostly correct—its legal conclusion that these three factors alone suffice to support apportionment cannot stand.[28] We address each factor below to show why.

a. Land Area

The only court of appeals case that has fully addressed divisibility of *landowner* liability takes a relatively strict approach to apportionment on the basis of land area. In *United States v. Rohm and Haas Co.*, 2 F.3d 1265 (3d Cir.1993), the most

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[28] We emphasize that our conclusion does not rest simply on the fact that the district court's calculation of the Railroads' share of liability was, as the court recognized, "rough[ ]." It is neither unusual nor fatal to the validity of the resulting allocation that an apportionment determination includes estimates of contribution to contamination based on extrapolation of record facts, as long as the basis for the extrapolation is explained, is logical, and does not disregard other record facts.

analogous CERCLA divisibility case to this one, the Third Circuit held, as do we, that "simply showing that one owns only a portion of the facility in question is [not] sufficient to warrant apportionment." *Id.* at 1280.

Like this case, *Rohm and Haas* concerned a landowner PRP and changes in landownership over time. Although the Third Circuit's divisibility analysis is fairly cursory, its reluctance to apportion landowner liability on the basis of land boundaries is informative. *Rohm and Haas* indicates that the mere percentage of land owned by one PRP relative to the entire facility cannot alone be a basis for apportionment, as it does not provide a minimally reliable basis for tracing the proportion of leakage, contamination, *or* cleanup costs associated with the entire parcel.

Contrary to *Rohm and Haas,* the district court's analysis gave star billing to the percentage of land ownership, even in a unified facility.[29] We agree with *Rohm and Haas* that this approach, seemingly straightforward though it is, fails in most circumstances to comport with the "reasonable basis" test, as the facts of this case illustrate.

The Arvin site was a single facility. CERCLA premises landowner liability on ownership of a *facility*, not on ownership of a certain parcel of land that is part of a facility. The operations on the site

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[29] Judge Moore, concurring in the result in *Township of Brighton*, asserted that a court can *never* apportion liability for contamination at a single facility on the basis of geography. *Township of Brighton*, 153 F.3d at 331 n. 12 (Moore, J., concurring in result). We do not agree with Judge Moore in this regard.

were dynamic, with fertilizer rigs stored on the Railroad parcel and filled up on the B & B parcel. Empty pesticide cans were stored on the Railroad parcel before they were crushed and disposed of. After the 1978 windstorm, tanks were stored all over the facility, including on the Railroad parcel. A simple calculation of land ownership does not capture any data that reflect this dynamic, unitary operation of the single Arvin facility.[30]

In addition, the synergistic use of different parts of the Arvin site makes division based on percentage of land ownership particularly untenable. The record shows that B & B leased the Railroad parcel to accommodate its expanding operations. The Railroad parcel added an unquantifiable and perhaps exponential amount to B & B's soil contamination. Were the Railroad parcel not part of the facility, there would have been less overall storage capacity. One can assume that a smaller amount of toxic chemicals would have been delivered to, and spilled on, the Arvin site. The fertilizer rigs, for example, were stored almost exclusively on the Railroad parcel. Had that parcel not been available, less fertilizer might have been delivered to—and leaked onto—the Arvin parcel. As these descriptions suggest, nothing in the record supports a conclusion that the leakage of contaminants that ended up on the B

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[30] In its discussion of the Railroads' apportioned liability, the district court found that B & B used the Railroad parcel as part of its total agricultural-chemical operations, and it earlier cited approvingly to documents describing the land as "an integral part of the adjacent farm chemical distribution facility." The dissent from denial of rehearing en banc therefore wrongly characterizes our description of the site as "appellate fact-finding." *See* Dissent at 958-60.

& B parcel occurred on each parcel in proportion to its size.

Instead, given the circumstances of this case, more pertinent comparisons would be the proportion of the amount of chemicals stored, poured from one container to another, or spilled on each parcel. For example, were adequate records kept, it would be possible to estimate the amount of leakage attributable to activities on the Railroad parcel, how that leakage traveled to and contaminated the soil and groundwater under the Arvin parcel, and the cost of cleaning up that contamination.

But none of this data is in the record. It may well be that such information is, as a practical matter, not available for periods long in the past, when future environmental cleanup was not contemplated. Unlike records concerning the amount of toxic chemicals produced by a given operator of a facility, records that separate out, with any precision, the amount of toxic chemicals stored on one part of a facility as opposed to another would have had little utility to B & B, the operator of the facility, and none to the Railroads, the owner of the parcel. This observation is true in spades for the more directly pertinent data, such as the amount of leakage on the Railroad parcel, the amount of that leakage that flowed onto the B & B parcel, and the amount of that residue that remained as contamination under the B & B parcel when the cleanup began.

So the failure to keep these records is quite understandable. But these practical considerations cannot justify a "meat-axe" approach to the divisibility issue, premised on percentages of land ownership, as a means of adjusting for the difficulties of proving divisibility with precision when PRP

status is based on land ownership alone. Such an approach would be tantamount to a disagreement with the imposition of no-fault land ownership liability. Congress, however, created precisely such liability, placing the responsibility to pay for environmental cleanup on parties, such as the Railroads, that profited from the circumstances giving rise to the contamination so that the taxpayers are not left holding the tab. The risk of lack of adequate information for meaningful division of harm therefore must rest on the responsible parties, even when that information is extremely hard to come by.

b. Period of Ownership

Just as the district court's land area calculations did not correspond to the harms in this case, its simple fraction based on the time that the Railroads owned the land cannot be a basis for apportionment. The fraction it chose assumes constant leakage on the facility as a whole or constant contamination traceable to the facility as a whole for each time period; no evidence suggests that to be the case. Again, if adequate information were available, it would make sense to eliminate the Railroads' liability for the period before B & B leased the Railroad parcel. *See, e.g., Rohm and Haas,* 2 F.3d at 1280. The evidentiary vacuum concerning the amount of contamination traceable to the pre-lease period, however, precludes any such calculation here.

c. Types of Hazardous Products

While many of the district court's calculations were factually correct but legally insufficient, its decision to assign a two-thirds fraction to represent the present types of hazardous products contains a basic factual error. All three chemicals were on the

Railroad parcel at some time. There is no evidence as to which chemicals spilled on the parcel, where on the parcel they spilled, or when they spilled. Yet, there *is* evidence that there may well have been leakage on the Railroad parcel of D-D, the chemical the district court excluded from its calculations. Given the record, the district court clearly erred in its attempt to rely on the proportion of hazardous products present on the Railroad parcel.

d. Conclusion

It will often be the case that a landowner PRP will not be able to prove in any detail the degree of contamination traceable to activities on its land. A landowner PRP need not be involved at all in the disposal of hazardous chemicals and so will often have no information concerning that disposal or its impact. The net result of our approach to apportionment of liability, consequently, may be that landowner PRPs, who typically have the least direct involvement in generating the contamination, will be the least able to prove divisibility. And contribution "is not a complete panacea since it frequently will be difficult for defendants to locate a sufficient number of additional, solvent parties." *O'Neil v. Picillo*, 883 F.2d 176, 179 (1st Cir.1989).

While the result may appear to fault a landowner PRP for failing to keep records proving the minor connection of its land to the contamination on the facility as a whole, CERCLA is not a statute concerned with allocation of fault. Instead, CERCLA seeks to distribute economic burdens. Joint and several liability, even for PRPs with a minor connection to the contaminated facility, is the norm, designed to assure, as far as possible, that *some* entity with connection to the contamination picks up

the tab. Apportionment is the exception, available only in those circumstances in which adequate records *were* kept and the harm *is* meaningfully divisible.

In sum, although most of the numbers the district court used were sufficiently exact, they bore insufficient logical connection to the pertinent question: What part of the contaminants found on the Arvin parcel were attributable to the presence of toxic substances or to activities on the Railroad parcel? We therefore reject the district court's apportionment calculation and hold that the Railroads have failed to prove any reasonable basis for apportioning liability for the costs of remediation.

3. Shell

Shell's contribution to the contamination of the Arvin site is easier to isolate than that of the Railroads', as it involved ascertainable pollutants entering the soil in a specific way. Shell thus had a greater prospect of succeeding on divisibility than did the Railroads, as there is *some* volumetric basis for comparing its contribution to the total volume of contamination on the Arvin site.

Nonetheless, the evidence actually produced was insufficient to allow even a rough approximation of the contamination remaining on the facility, either directly or through the presumption that the pro rata cost of remediating contamination is likely to be equivalent to a PRP's pro rata share of contamination. Indeed, Shell produced only evidence concerning leakage.

Such leakage or disposal evidence cannot suffice in the present circumstances as a basis for apportioning the harm in question. As we have explained,

contamination—as distinct from leakage—is the necessary consideration. Where there is disposal of multiple contaminants, courts have demanded a "showing [of] a relationship between waste volume, the release of hazardous substances, and the harm at the site." *Monsanto*, 858 F.2d at 172. Factors such as "relative toxicity, migratory potential, and synergistic capacity of the hazardous substances" are relevant to demonstrating this relationship. *Id.* at 172 n. 26. Alternatively, volumetric calculations of *contaminating* chemicals—those *remaining* in the environment and requiring cleanup—*could* be sufficiently specific for apportionment. *See Hercules*, 247 F.3d at 719; *Bell Petroleum*, 3 F.3d at 903. But Shell provided no evidence regarding such factors. It thus failed to prove whether its leaked chemicals contaminated the soil in any specific proportion as compared to other chemicals spilled at the site. *See United States v. Agway, Inc.*, 193 F.Supp.2d 545, 549 (N.D.N.Y.2002) (noting that defendants whose products have become commingled in the soil "face an uphill battle in attempting to demonstrate that volumetric contribution is a reasonable basis for apportioning liability of a single harm").

To fill these evidentiary gaps, the district court assumed equal contamination and cleanup cost from all the chemicals' leakage. This methodology entirely failed to account for the possibility that leakage of one chemical might contribute to more contamination than leakage of another, because of their specific physical properties. Similarly, the cost of cleanup depends upon which contaminants are present; some contaminants are more expensive than others to extract from the soil.

Moreover, even as an approximation of *leakage*, the district court's calculations were too speculative to support apportionment. *Chem-Nuclear* is informative in this regard. In *Chem-Nuclear*, the defendant disposed of drums of hazardous waste at several facilities. 292 F.3d at 255. At least eighty drums found at a single site were attributable to the defendant. *Id.* The defendant could not prove, however, that it was responsible only for those eighty drums, and therefore was not entitled to apportionment. *Id.* at 259-61. Although the defendant provided evidence supporting inferences regarding where its drums went, the court refused to accept these inferences as sufficient proof. *Id.* at 260.

Here, the court estimated the volume of Shell's chemicals that leaked from each transfer based on data samples that do not readily extrapolate to total leakage over the entire twenty three-year period that Shell supplied B & B with D-D. The court used figures from only six years of B & B's purchases of Shell D-D to calculate the average D-D transferred at the Arvin site each year, yet provided no basis for assuming equal purchases each year. The court then based its estimate of the amount of D-D spilled during each transfer on guesses by witnesses.[31] Also, although D-D was known to leak when sight gauges on D-D rigs broke, the court had no evidence of how much D-D leaked under these circumstances and, therefore, did not add any quantity for sight gauge leakage into the calculation. Even if each of these

[31] For the quantity of D-D that spilled during transfer from Shell's carriers' trucks to the D-D rigs, for example, the court relied on estimates of witnesses that the spill was between a cup and a quart. It then calculated "3 cups x 23 years = 2,691 cups => 168 gallons of D-D."

estimates alone might have been reasonable, the resulting combined estimate is too speculative to serve as an accurate basis for ascertaining leakage, let alone contamination or the costs of cleaning up the contamination.[32]

Again, Shell's harm was *capable* of apportionment. Shell could have provided data showing the volume of chemicals shipped to B & B every year, or more precise estimates of the average volume of leaked chemicals during the transfer process. Data connecting the properties of the various chemicals leaked at the site to the likelihood that they contributed to the contamination could have been

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[32] There is something of a circuit split on the degree of specificity of proof necessary to establish the amount of liability apportioned to each PRP. According to some courts, proving up the precise proportion attributable to each PRP is a "very difficult proposition," *Control Data Corp. v. S.C.S.C. Corp.*, 53 F.3d 930, 934 n. 4 (8th Cir.1995), requiring "concrete and specific" evidence in support of any proposed apportionment, *Hercules*, 247 F.3d at 718. The defendant cannot rely on a "chain of possible inferences." *Chem-Nuclear*, 292 F.3d at 260. In contrast, other courts have permitted informal estimates or data rather than more exact calculations. *See Bell Petroleum*, 3 F.3d at 903-04 (allowing estimation of the proportion of contamination produced by each of a series of successive operators of a facility, where reliable approximations were simple because there was a single chemical produced by the successive operators each of whom operated the facility similarly); *see also Hercules*, 247 F.3d at 719 (relying on *Bell Petroleum*, 3 F.3d at 895-96, and holding that the defendant need not show that there was no possibility that it contributed to the harm, because certain approximations can suffice). Aside from noting, as we have, *supra* n. 27, that logical, supportable inferences from the record facts are, as always, permissible, we need not weigh in on this dispute, as the district court's extrapolations could not be upheld under even a forgiving standard.

presented and considered. But the record before us provides none of that information, most likely because Shell put its eggs in the no-liability basket.

In the end, the district court's apportionment analysis with regard to Shell came closer to meeting the legal standard than the method it used with respect to the Railroads. We hold, nonetheless, that on the facts of this case as the district court found them, there was no reasonable basis for apportioning the pertinent harm caused by Shell.

B. "Arranger" Liability

Under CERCLA, "any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person" is liable. § 9607(a)(3). Shell claims that (1) the district court applied the wrong legal standard in determining whether Shell was an "arranger" under § 9607(a); (2) the "useful product" doctrine precludes imposition of "arranger" liability on Shell; (3) Shell lacked ownership and control over the chemicals at the time of the transfers and thus the district court could not find that it had arranged them; and (4) because D-D evaporates or disperses rather than remaining in toxic form in the soil, the district court erred when it determined that Shell contributed to the groundwater contamination. We reject these contentions and affirm the district court's ruling on the "arranger" issue.

We review the district court's interpretation of CERCLA to determine the legal standard for arranger liability as a question of law, reviewed de novo. *Carson Harbor Vill.*, 270 F.3d at 870. We

review the district court's factual determinations regarding Shell's operations for clear error. *W. Prop. Serv. Corp. v. Shell Oil Co.*, 358 F.3d 678, 685 (9th Cir.2004).

1. Requirements for "Arranger" Liability

CERCLA does not define "arrange[ ]." We have avoided giving the term "arranger" too narrow an interpretation to avoid frustrating CERCLA's goal of requiring that companies responsible for the introduction of hazardous waste into the environment pay for remediation. *Pakootas v. Teck Cominco Metals, Ltd.*, 452 F.3d 1066, 1081 (9th Cir.2006); *Cadillac Fairview/Cal., Inc. v. United States*, 41 F.3d 562, 565 n. 4 (9th Cir.1994) (per curiam) (citing with approval *United States v. Aceto Agric. Chems. Corp.*, 872 F.2d 1373, 1380 (8th Cir.1989)); *see also Jones-Hamilton Co. v. Beazer Materials & Servs., Inc.*, 973 F.2d 688, 694-95 (9th Cir.1992) *(discussing Aceto*, 872 F.2d at 1384). Accordingly, we have recognized, in addition to "direct" arranger liability, a "broader" category of arranger liability, *see United States v. Shell Oil Co.*, 294 F.3d 1045, 1054-55 (9th Cir.2002), in which disposal of hazardous wastes is a foreseeable byproduct of, but not the purpose of, the transaction giving rise to PRP status.

"Direct" arranger liability—also referred to as "'traditional' direct" arranger liability—involves transactions in which the central purpose of the transaction is disposing of hazardous wastes. *See id.*; *see, e.g., Cadillac Fairview*, 41 F.3d at 563-65 (involving rubber companies that transferred contaminated styrene to Dow Chemical for reprocessing); *Catellus Dev. Corp. v. United States*, 34 F.3d 748, 749-50 (9th Cir.1994) (involving a company that sold used automotive batteries to a lead reclamation plant). In

contrast, "broader" arranger liability involves transactions that contemplate disposal as a *part* of, but not the focus of, the transaction; the "arranger" is either the source of the pollution or manages its disposal. *See Shell Oil*, 294 F.3d at 1058. In the "broader" arranger liability cases, such as *Shell Oil*, we examined the connection between the alleged arranger transaction and the disposal and decided whether the transaction necessarily constituted an arrangement for disposal of hazardous substances, whatever immediate form it may have taken.

These broader arranger cases can involve situations, like the present one, in which the alleged arrangers did not contract directly for the disposal of hazardous substances but did contract for the sale or transfer of hazardous substances, which were then disposed of. *See, e.g., Fla. Power & Light Co. v. Allis Chalmers Corp.*, 893 F.2d 1313, 1315, 1318 (11th Cir.1990) (involving purchaser and recycler that sued manufacturer of transformers for cleanup costs from later disposal); *Mathews v. Dow Chemical Co.*, 947 F.Supp. 1517, 1519-20 (D.Colo.1996) (involving neighbors of chemical company who sued manufacturer of paint thinner for contamination resulting from packaging paint thinner); *Courtaulds Aerospace, Inc. v. Huffman*, 826 F.Supp. 345, 347-48, 353-54 (E.D.Cal.1993) (involving neighbor of smelting plant who sued companies that contracted with plant for burning and smelting of copper wire for resulting contamination). There are no Ninth Circuit cases in this category.[33]

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[33] Although *Shell Oil* involved "broader" arranger liability, it concerned "arranger" liability of a customer, rather than a producer, of hazardous materials. 294 F.3d at 1056. There, the defendant oil companies sought to hold the United States liable

The inclusion of such circumstances within the "arranger" concept, however, accords with the statutory language and structure as a whole. To be an "arranger," one must "arrange[ ] for disposal or treatment, or arrange [ ] with a transporter for transport for disposal or treatment, of hazardous substances . . . ." § 9607(a)(3). CERCLA's definition of "disposal," in turn, includes "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or constituent thereof may enter the environment or be . . . discharged into any waters, including ground waters." § 6903(3) (referred to by § 9601(29)). That "disposal" includes such unintentional processes as "leaking" indicates that "disposal" need not be purposeful. *See Carson Harbor Vill.*, 270 F.3d at 880 (holding that "leaking" may not "require affirmative . . . conduct" (internal quotation marks omitted) (quoting and adopting interpretation of *United States v. CDMG Realty Co.*, 96 F.3d 706, 714 (3d Cir.1996))). Thus, an entity can be an arranger even if it did not intend to dispose of the product. Arranging for a transaction in which there necessarily would be leakage or some other form of disposal of hazardous substances is sufficient.

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as an "arranger" because the federal government had purchased large quantities of high octane fuel for military use; the process used by the oil companies to refine the fuel resulted in toxic waste that the oil companies later dumped at a site in California. *Id.* Because the United States was the end purchaser, never owned the intervening toxic products used in the refining process, and did not contract out the crucial, waste-producing intermediate step, we held that it was not an arranger under § 9607(a)(3). *Id.* at 1056-59.

2. "Useful Product" Doctrine

While adopting a generally expansive view of arranger liability, we have refused to hold manufacturers liable as arrangers for selling a useful product containing or generating hazardous substances that *later* were disposed of. *See, e.g., 3550 Stevens Creek Assocs. v. Barclays Bank of Cal.*, 915 F.2d 1355, 1362-65 (9th Cir.1990). As *Stevens Creek* and other "useful product" cases recognize, liability cannot extend so far as to include *all* manufacturers of hazardous substances, on the theory that there will have to be disposal of the substances some time down the line, *after* it is used as intended. See, e.g., *Stevens Creek*, 915 F.2d at 1362-65 (refusing to hold manufacturer liable for costs of removing asbestos from building); *Fla. Power & Light*, 893 F.2d at 1318-19 (refusing to hold manufacturer of transformers liable for subsequent release of chemicals upon disposal of transformers). Also, the asserted liability in "useful product" cases generally involved only the normal use of those chemicals. *See, e.g., Jordan v. S. Wood Piedmont Co.*, 805 F.Supp. 1575, 1577 (S.D.Ga.1992) (involving the sale of chemicals to treat wood and the contamination from the wood treatment process); *Edward Hines Lumber Co. v. Vulcan Materials Co.*, 685 F.Supp. 651, 653 (N.D.Ill.1988) (same).

The useful product cases have no applicability where, as here, the sale of a useful product necessarily and immediately results in the leakage of hazardous substances. In that circumstance, the leaked portions of the hazardous substances are *never* used for their intended purpose. *See Zands v. Nelson*, 779 F.Supp. 1254, 1262 (S.D.Cal.1991) (stating that "gasoline is no longer a useful product

after it leaks into, and contaminates, the soil"); *see also Aceto,* 872 F.2d at 1381 (rejecting application of the useful product doctrine where "waste is generated *and disposed of* contemporaneously with the process" (emphasis added)).

Here, although Shell sold B & B a useful product, leakage of some of that product *before* B & B could use it was both inherent in the transfer process arranged by Shell and contemporaneous with that process.[34] Shell arranged for delivery of the substances to the site by its subcontractors; was aware of, and to some degree dictated, the transfer arrangements; knew that some leakage was likely in the transfer process; and provided advice and supervision concerning safe transfer and storage. Disposal of a hazardous substance was thus a necessary part of the sale and delivery process.

Put another way, the district court did not assign arranger liability to Shell for contamination resulting from the application of Shell's useful products to the soil as fertilizers or fumigants, or for disposal of contaminated soil after the products were used. Instead, the district court assigned arranger liability on the portion of product that never made it to the fields for its intended use but was disposed of prior to use. Because Shell's liability here stems from the leaked chemicals rather than the fertilizer that was

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[34] For this reason, we also reject Shell's argument that, because manufacturers are taxed to provide money for the Superfund, Congress could not, without more, have intended for them to be subject to liability as arrangers. *See* 26 U.S.C. §§ 4661, 4662. Shell's liability derives not from its role as a manufacturer of a useful product but rather from its role in leakage prior to use. The Superfund tax is wholly irrelevant to the latter imposition of liability and certainly does not bar it.

used as fertilizer, the useful product doctrine is not applicable.

3. Control and Ownership

Much of the district court's analysis relies on the factual determination that spills would necessarily occur during the transfer of Shell's chemicals to B & B. Shell maintains that this finding was inadequate, because Shell did not itself transport the chemicals or participate in transferring the chemicals to B & B's containers. Central to this contention is Shell's insistence that it lacked ownership and control of the chemicals at the time of transfer and so could not be an "arranger." We do not agree that the district court's findings about Shell's involvement were insufficient to support "arranger" liability.

There was evidence before the district court that: (1) Spills occurred *every time* the deliveries were made; (2) Shell arranged for delivery and chose the common carrier that transported its product to the Arvin site; (3) Shell changed its delivery process so as to require the use of large storage tanks, thus necessitating the transfer of large quantities of chemicals and causing leakage from corrosion of the large steel tanks; (4) Shell provided a rebate for improvements in B & B's bulk handling and safety facilities and required an inspection by a qualified engineer; (5) Shell regularly would reduce the purchase price of the D-D, in an amount the district court concluded was linked to loss from leakage; and (6) Shell distributed a manual and created a checklist of the manual requirements, to ensure that D-D tanks were being operated in accordance with Shell's safety instructions.

The parties vigorously dispute whether, given these facts, Shell owned the pesticide during the transfer and controlled the transfer process. Although the district court addressed these questions and resolved them against Shell, we do not enter this controversy. The text of the statute does not require that the arranger own the hazardous wastes, either at the time the "arranger" arranged for the transaction or at the time of transfer of ownership. *See Pakootas*, 452 F.3d at 1081. Indeed, to require ownership at the time of disposal "would make it too easy for a party, wishing to dispose of a hazardous substance, to escape by a sale its responsibility to see that the substance is safely disposed of." *Catellus*, 34 F.3d at 752. Nor is control a statutory requirement, *Cadillac Fairview*, 41 F.3d at 565, although it has been viewed as a pertinent consideration in cases quite different from this one.

Where an owner of hazardous substances *directly* "arranges" for disposal—by, for example, using a hazardous substance disposal company—that owner is plainly an "arranger" even if it has nothing more to do with disposal. *See, e.g., Catellus,* 34 F.3d at 752. In "broader" arranger liability cases, however, we have tended to view control as a "crucial element" in determining whether the party arranged for disposal. *Shell Oil*, 294 F.3d at 1055. We also have viewed ownership of hazardous substances at the time of disposal as an important factor in nontraditional, indirect arranger liability cases. *See Jones-Hamilton*, 973 F.2d at 695 (*relying on Aceto*, 872 F.2d at 1380).

None of these cases, however, indicates that ownership or control at the time of transfer are the sine qua non of nontraditional arranger liability.

Instead, ownership and control at time of disposal are useful indices or clues toward the end of "look[ing] beyond defendants' characterizations to determine whether a transaction in fact involves an arrangement for the disposal of a hazardous substance." *Aceto*, 872 F.2d at 1381. In *Shell Oil*, for example, the government *never* owned the chemicals before disposal occurred, so control over the substances was an important factor in determining whether or not the government could have "arranged" for disposal. *Shell Oil*, 294 F.3d at 1057-59.

Here, ownership at the time of disposal is not an informative consideration, and control is informative only in light of additional considerations. Unlike in *Shell Oil*, where the absence of *any* ownership or control was a clue concerning whether the sales transaction necessarily contemplated disposal as an inherent part of the transaction, Shell here owned the chemicals at the time the sale was entered into. The statute requires nothing more in terms of ownership. We therefore need not determine the precise moment when ownership transferred to B & B. As to the control question, the district court's findings, recited above, demonstrate that Shell had sufficient control over, and knowledge of, the transfer process to be considered an "arranger," within the meaning of CERCLA, for the disposal of the chemicals that leaked.

4. Groundwater Contamination

Shell, finally, contends that the court erred when it determined that it contributed to the groundwater contamination, maintaining that D-D evaporates or disperses rather than remaining in toxic form in the

soil. The district court's analysis on this issue is factually complex and based on several weeks of testimony. The district court made specific findings that D-D can indeed enter groundwater. Those findings are based on the testimony of experts whom the court found persuasive. In light of the complexity of the science and the substantial expert evidence supporting the finding, the district court's determination was not clearly erroneous.

IV. Conclusion

The district court erred in determining that the harm in this case could be apportioned on this record. Given the district court's erroneous approach and the paucity of record evidence, there is no reasonable basis for apportioning the damages attributable to the Railroads' activity. Shell's liability is a closer call, but the evidence on the record in that regard is also insufficient to support apportionment.

The district court followed the proper analysis in finding that Shell is liable as an arranger. Shell arranged for the sale and transfer of chemicals under circumstances in which a known, inherent part of that transfer was the leakage, and so the disposal, of those chemicals.

We therefore reverse as to the district court's finding on apportionment. We affirm the district court's findings regarding both the Railroads' and Shell's liability. The Railroads and Shell are jointly and severally liable for the harm at the Arvin site, except with regard to the so-called "Dinoseb hot

spot."[35] We remand for further proceedings not inconsistent with this opinion.

REVERSED in part and AFFIRMED in part.

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[35] The district court found that the "Dinoseb hot spot" was a discrete area contaminated by Dinoseb (a Dow product) as the result of a major spill in 1983, that Shell did not manufacture or ship that product, and that Shell thus bore no responsibility for any part of the $1.3 million cost of cleaning up this discrete spill. The governments did not challenge this finding on appeal. That finding therefore stands, and the district court should not include the $1.3 million cleanup costs for the "Dinoseb hot spot" in the calculation of Shell's liability. Because we therefore do not hold Shell liable for this Dow product, the dissent from denial of rehearing en banc is wrong when it claims we err by holding Shell liable for "contamination from products Shell did not sell to B & B." Dissent at 962-63 n. 22.

BEA, Circuit Judge, with whom KOZINSKI, Chief Judge, O'SCANNLAIN, KLEINFELD, GOULD, TALLMAN, CALLAHAN, and N.R. SMITH, Circuit Judges, join, dissenting from the order denying the petition for rehearing en banc:

The panel applies CERCLA[1] in a novel and unprecedented way to impose impossible-to-satisfy burdens on CERCLA defendants. The panel's interpretation of CERCLA "arranger" liability[2] creates intra- and inter-circuit conflicts in an area of the law where uniformity among circuits is of paramount importance. *See* Panel Op. at 935-36 (noting CERCLA's "policy favoring national uniformity so as to discourage illegal dumping in states with lax liability laws" (citation omitted)). Further, the panel's unreasonable application of CERCLA apportionment law imposes joint and several liability on CERCLA defendants where Congress did not so intend.

Our national policy on toxic spills or disposals is quite clear; it does not allow for dithering. Anyone who owned or used the land when or after the pollution entered it is potentially liable for its clean-up.[3] It does not matter how the toxic materials entered the land; that others may also be potentially liable or that reasonable stewardship was exercised are simply not defenses.

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[1] Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), 42 U.S.C. §§ 9601-9675.

[2] Under CERCLA, an entity that "arrange[s] for disposal or treatment ... of hazardous substances" is strictly liable for the clean-up costs. 42 U.S.C. § 9607(a)(3).

[3] In addition, CERCLA imposes liability on persons who "arranged for disposal or treatment ... of hazardous substances," and persons who accepted "hazardous substances for transport to disposal or treatment facilities." 42 U.S.C. § 9607(a)(3), (4).

But "potentially liable" does not mean "totally liable." Just as CERCLA allows the landowner or the land user to prove the pollution entered the land *before* he had anything to do with the land, he can also prove others caused the pollution, in whole or in part,[4] and that he is liable only for his apportioned share of the pollution.

The panel's recent amendments to its opinion do take a step in the right direction by aligning the Ninth Circuit with our sister circuits on CERCLA apportionment law.[5] As the amended panel opinion notes, courts follow Restatement (Second) of Torts ("Restatement") principles in apportioning the harm between defendants held strictly liable under CERCLA. *See* Panel Op. at 939. Under the Restatement, and now the amended panel opinion, apportionment is permissible so long as the evidence allows the court to make "a reasonable estimate that will fairly apportion liability." *Id.* at 936 n. 18 (citation omitted).

But although the panel's amended opinion pays lip-service to the Restatement test, the panel then proceeds effectively to disregard it. Purporting to require only a "reasonable estimate" for apportion-

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[4] *See* 42 U.S.C. § 9607(b)(3).

[5] Henceforth, CERCLA apportionment in the Ninth Circuit will be governed-not by a test that allows a landowner to avoid joint and several liability only with "perfect information" that portions of the contamination are "in no respect traceable" to its land-but by a "reasonable basis" test under the Restatement (Second) of Torts § 433A(1)(b). *See* Panel Op. at 938 (holding a landowner can "establish divisibility by demonstrating a *reasonable basis* for concluding that a certain proportion of the contamination did not originate" on its facility (emphasis added)).

ment, the panel imposes joint and several liability for the *entire* clean-up cost of a contaminated facility on an absentee landlord who leased a parcel: (1) that constituted 19.1% of the facility that caused the contamination; (2) for only 13 of the 29 years during which the contamination occurred (45% of the time); and (3) the contamination on which could have caused no more than 10% of the overall contamination. *See United States v. Atchison, Topeka & Santa Fe Ry. Co.*, Nos. CV-F-92-5068 OWW, CV-F-96-6226 OWW, CV-F-96-6228 OWW, 2003 WL 25518047, at *88 (E.D.Cal. July 15, 2003). If this evidence does not provide a "reasonable estimate" for apportionment of liability, I do not see how—short of "perfect information" sufficient to trace every molecule of pollution to the landlord's parcel[6]—apportionment could ever be possible under CERCLA. The panel's amendments thus go only half way by adopting the correct prism through which to look at the evidence. But it is not enough to use new spectacles. One must still look at the evidence. The fact remains, and as the panel expressly holds, the district court did not commit clear error in finding a reasonable basis for apportionment of liability. *See* Panel Op. at 943 ("[W]e do not fault the district court's factfinding . . . ."). Regardless, the panel rejects the meticulous apportionment determinations of the district court, issued in a 191-page opinion, as

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[6] For the same result, albeit with a different, and now abandoned, verbal formulation, see the panel's original opinion: *United States v. Burlington Northern & Santa Fe Ry. Co.*, 502 F.3d 781, 801 (9th Cir.2007) (allowing CERCLA apportionment only with proof by "perfect information" "that portions of the contamination are in no respect traceable" to the landowner's facility), *amended by order denying petition for rehearing en banc.*

"legally insufficient" for relying on "the simplest of considerations." *Id.* at 943, 945.

To denigrate by adjectives is not to reason, much less to explain. Holding the district court's calculations are "simple" does not even begin to determine whether those calculations were clear error, or whether the calculations provide a "reasonable estimate" to apportion liability. As Justice Oliver Wendell Holmes, Jr., said, "I would not give a fig for the simplicity this side of complexity, but I would give my life for the simplicity on the other side of complexity." [7] The panel turns Justice Holmes's eloquent statement on its head: Instead of commending the district court for finding simplicity after navigating 191 pages of complexity, the panel rebukes the district court, contending that the district court's careful findings of fact—though not clear error-are not worth a fig.

While at it, the panel imposes "arranger" liability on Shell Oil for agricultural fertilizers that were spilled on the site by the buyer of Shell's product, shipped by a common carrier in non-defective truck tankers, *F.O.B. delivery point.*[8] The panel's imposition of arranger liability on a mere seller, which relinquished control over its products upon delivery and before spillage occurred, goes far beyond the statutory language and creates inter- and intra-circuit splits. *See AM Int'l, Inc. v. Int'l Forging Equip. Corp.*, 982 F.2d 989, 999 (6th Cir.1993) ("[C]ourts ...

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[7] http:// en. wikiquote. org/ wiki/ Oliver_ Wendell_ Holmes'_ Jr.

[8] "FOB" means "free on board" and "when the term is F.O.B. the place of destination, the seller must at his own expense and risk transport the goods to that place and there tender delivery of them." U.C.C. § 2-319(1)(b).

have consistently held that the mere sale of a product is not 'arranging for disposal' under [CERCLA]."); *United States v. Shell Oil Co. ("McColl")*, 294 F.3d 1045, 1055, 1057 (9th Cir.2002) (requiring "actual control" over the hazardous products as a "crucial element" of arranger liability). The panel further holds Shell jointly and severally liable for the entire contamination on the facility—including contamination from products Shell did not even sell. *See* Panel Op. at 945-48.

True, the land on which the facility operator spilled the toxic fluids encompassed only 4.7 acres. But the panel's legal errors will spread over this Circuit's nine states and 1.3 million square miles, to lots large and small.

I respectfully dissent from our decision not to rehear this case en banc.

I.

This case involves environmental contamination caused by a now-defunct company, Brown & Bryant ("B & B"), which owned and operated an agricultural chemical distribution facility ("B & B parcel") from 1960 to 1989. Panel Op. at 930. In 1975, fifteen years into its operation, B & B leased from the Defendant-Railroads ("the Railroads") a contiguous parcel of land ("the Railroad parcel") located west of the B & B parcel. *Id.* at 930. The B & B parcel comprised 3.8 acres; the Railroad parcel comprised 0.9 acres. *Id.* At its facility, B & B stored the chemicals D-D, Nemagon, and Dinoseb. *Atchison,* 2003 WL 25518047, at *4. Throughout its operation, B & B discharged contaminated wastewater into a sump that was used to wash agricultural equipment and into a pond, both of which were located on the B & B

parcel. *Id.* at *12, *16. Neither the sump nor the pond were, at first, lined so as to be impervious. *See id.* at *8.

The government asserted B & B's activities on the Railroad parcel may have contaminated the groundwater through: (1) focused infiltration of contaminants into the groundwater; and (2) drainage from the Railroad parcel onto the pond located on the B & B parcel. *Id.* at *10-12. As to the first theory, the government could not identify any areas on the Railroad parcel where infiltration into the groundwater actually occurred. *Id.* at *11. Indeed, it was "undisputed that the pond, the sump, and the dinoseb spill area, all of which are located on the B & B parcel, were and are the primary sources of the groundwater contamination." *Id.* at *12. As to the second theory, the district court found a "substantial dispute" remained over whether rainfall was "sufficient to generate the quantity of runoff that would have been necessary" for drainage of chemicals from the Railroad parcel to the B & B parcel. *Id.* at *11.

The district court found "[t]he levels of chemical contamination on and under B & B parcel are substantially higher than any of the reported detections on and under the Railroad parcel." *Id.* Specifically, the district court found:

> [R]eleases at the Railroad parcel could not have contributed more than ten [percent] (10%) of the overall site contamination given the fact that the predominant activities conducted on the Railroad parcel through the years were storage and some washing and rinsing of tanks, other receptacles, and chemical application vehicles. Mixing, formulating, loading, and unloading of ag-chemical hazardous substances, which contributed most of

> the liability causing releases, were predominantly carried out by B & B on the B & B parcel.

Id. at *88.

B & B purchased the agricultural product D-D from Shell pursuant to a non-exclusive marketing agreement for the resale of Shell D-D. *Id.* at *4-5. Shell shipped D-D to the B & B facility by common carrier trucks "FOB Destination." *Id.* at *5. There was no evidence the transportation caused any leakage or that the tanks carried by the trucks leaked. Upon arrival, the contents of the trucks were transferred to B & B's storage tanks, during which D-D spills regularly occurred. *Id.* at *20. The district court found the "stewardship" of D-D passed to B & B when the common carrier arrived at the B & B facility, and *before* the transfer of D-D was attempted to B & B's storage tanks.[9] *Id.* at *23. Nevertheless, the panel holds Shell exercised control over the transfer process.

Pursuant to their authority under CERCLA, the California Department of Toxic Substances Control ("DTSC") and the U.S. Environmental Protection Agency ("EPA") cleaned up the contamination on the B & B facility. Panel Op. at 931-32.

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[9] The amended panel opinion notes the common carrier, and not B & B employees, transferred the D-D from the trucks to the storage tanks before the early 1980s. *See* Panel Op. at 931 n. 5. The panel states it was only in the early 1980s that B & B employees started conducting the transfer themselves. *Id.* This is of no material consequence. If, as the district court found, the stewardship of the D-D passed to B & B *before* the transfer occurred, it is irrelevant whether B & B employees or the common carrier employees executed the transfer. In either case, B & B, not Shell, retained "stewardship" over the D-D and the transfer process.

"None of the contamination requiring immediate remediation was on the Railroad parcel." *Id.* Thereafter, EPA and DTSC filed this CERCLA action against B & B, the Railroads, and Shell for reimbursement of their clean-up costs.

The district court held the Railroads and Shell liable under CERCLA. The district court apportioned 9% of the clean-up costs to the Railroads based on the following: (1) the Railroad parcel constituted 19.1% of the entire B & B facility; (2) the Railroad parcel was leased to B & B for 13 of the 29 years the B & B facility operated, or 45% of the time; and (3) the fraction of the hazardous products attributable to the Railroad parcel was 66%. *Id.* at 932. The multiplication of these three proportions, rounded upwards, resulted in 6% liability. *Id.* at 932-33. To account for any error, the district court assumed a 50% error rate and raised the Railroads' liability to 9%.[10] *Id.* at 932-33. The district court fixed Shell's liability at 6%, which represented the proportion of D-D spills that occurred during deliveries to the total amount of D-D spills on the facility. *Id.* at 932-33.

DTSC and EPA appealed. *Id.* Shell cross-appealed the district court's holding that it was liable under CERCLA as an "arranger." *Id.* The Railroads did not contest their liability on appeal. The panel affirmed Shell's liability under CERCLA as an "arranger" but reversed the district court's apportionment of liability, holding the Railroads and Shell jointly and severally liable for the entire clean-up cost. *Id.* at 930.

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[10] Thus, if anything, the district court was over-generous to the government in its apportionment calculations.

II.

The panel first holds the contamination on the B & B facility is theoretically capable of apportionment. *Id.* at 942. The panel reasons that some of the contamination occurred before the Railroads leased their parcel to B & B. *Id.* Further, "[o]nly some of the toxic substances were stored on the Railroads' parcel, and only some of the water on the facility washed over the Railroads' site." *Id.*

Second, the panel addresses whether the district court clearly erred in finding that the Railroads actually established a basis for apportionment. *See id.* at 942 ("[W]e review for clear error whether the defendant submitted evidence sufficient to establish a reasonable basis for the apportionment of liability."). The panel does not hold that the district court's findings are clearly erroneous. *See id.* at 943 ("[W]e do not fault the district court's factfinding . . . ."); *id.* at 945 ("[M]any of the district court's calculations were factually correct. . . ."). Nevertheless, while baiting it would review for clear error whether the district court found sufficient evidence to justify apportionment, the panel switches, by characterizing the issues as *legal*, to apply *de novo* review. The panel achieves this sleight of hand by holding, without any citation of authority, that the district court's reliance on "the simplest of considerations" (i.e., "percentages of land area, time of ownership, and types of hazardous products") is "legally insufficient" to support apportionment under the Restatement's reasonable basis test. *Id.* at 942, 945.

Not so fast. Aren't these so-called "simplest of considerations" precisely the considerations the panel's amended opinion itself holds are sufficient for

apportionment?: "We . . . agree . . . [that] divisibility may be established by volumetric, chronological, or other types of evidence, including appropriate geographic considerations." *Id.* at 936 n. 18 (citations omitted). Percentage of land ownership (a "geographic" consideration) and period of ownership (a "chronological" consideration) provide a "reasonable basis" to apportion liability to the Railroads, which is all the Restatement, our sister circuits, and indeed the panel's amended opinion itself require. As the district court observed:

> The concept that a passive owner of a contiguous parcel, not representing more than 19% in area of a CERCLA site, operated less than 44% of the time, where substantially smaller volumes of hazardous substance releases occurred, should be strictly liable for the entire site remediation, because no other responsible party is judgment-worthy, takes strict liability beyond any rational limit.

Atchison, 2003 WL 25518047, at *87.

This evidence is not good enough for the panel. Instead, the panel requires "adequate records" detailing "the amount of leakage attributable to activities on the Railroad parcel, how that leakage traveled to and contaminated the soil and groundwater under the [B & B facility], and the cost of cleaning up that contamination."[11] Panel Op. at 944. In a feat of self-deprecating candor, the panel

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[11] ". . . cost of cleaning up that contamination."? How could B & B, Railroads, or Shell have kept such records when it was the government agencies that cleaned up the contamination, rather than the facility operator, the partial lessor, or the materials seller?

then admits, "records that separate out, with any precision, the amount of toxic chemicals stored on one part of a facility as opposed to another would have had little utility to B & B, the operator of the facility, and none to the Railroads, the owners of the parcel." *See id.* at 944. Even though the panel recognizes "the failure to keep these records is quite understandable," the panel nonetheless saddles the defendants with joint and several liability for lack of such records.[12] *See id.* at 944.

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[12] The panel also notes, "[w]hile it may seem unfair to hold a partial owner liable for all of the contamination cleanup costs, that perceived unfairness is the result of CERCLA's expansive statutory liability scheme." Panel Op. at 940-41. The panel is incorrect. CERCLA's "expansive" liability scheme, as the panel itself admits, is silent as to whether defendants held strictly liable under the statute are also jointly and severally liable for the entire harm, or only severally liable for the harm attributable to them. *Id.* at 934-35. As the panel correctly notes, Congress declined to mandate joint and several liability in CERCLA and intended courts to follow Restatement principles in apportioning the harm between defendants held strictly liable. *Id.*

In this case, the panel was not asked to determine whether the Defendant-Railroads were liable. Instead, the panel was charged with deciding whether the Defendant-Railroads, who were strictly liable under CERCLA, should be held jointly and severally liable for the entire cleanup cost. By conflating the establishment of liability and apportionment of liability questions, the panel disregards a basic tort principle: Strict liability is *not* mandatorily joint and several liability. Thus, the "unfairness" of holding a partial owner liable for the entire clean-up cost results, not from CERCLA's strict liability scheme, but the panel's unreasonable application of the Restatement apportionment principles to the facts of this case, affected perhaps by its confusion between strict (negligence free) liability and joint and several (apportionment free) liability.

A.

First, the panel holds that the district court's reliance on the percentage of the B & B facility owned by the Railroads (19.1%) cannot support apportionment. *Id.* at 943-44. The panel reasons that percentage of ownership does not "provide a minimally reliable basis for tracing [the activities on the Railroad parcel to] the proportion of leakage" associated with the entire parcel because the B & B facility, including the Railroad parcel, is an inseparable facility with a "dynamic, unitary operation." *Id.* at 944.

The panel's conclusions are erroneous for two reasons. First, the panel got the law wrong: The district court's reliance on percentage of land ownership as a proper factor in apportioning damages finds support from the Restatement and our sister circuits. A comment to Restatement (Second) of Torts § 433A(1), which has been relied on by other circuits to apportion CERCLA liability[13] and which the panel itself quotes, Panel Op. at 937 n. 20, describes an analogous scenario:

> There are other kinds of harm which, while not so clearly marked out as severable into distinct parts, are still capable of division upon a reasonable and rational basis, and of fair apportionment among the causes responsible. Thus where the cattle of two or more owners trespass upon the plaintiff's land and destroy his crop, the aggregate harm is a lost crop, but it

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[13] *See, e.g., In re Bell Petroleum Servs.*, 3 F.3d 889, 903 (5thCir.1993) (relying on this Restatement comment to reject the argument that absolute certainty is required for apportionment of CERCLA liability).

> may nevertheless be apportioned among the owners of the cattle, on the basis of the number owned by each, and the reasonable assumption that the respective harm done is proportionate to that number.

Restatement (Second) of Torts § 433A(1) cmt. d.

Even though it is not possible to determine the precise harm caused by each animal (e.g., one owner's cattle might have idly stood by while the rest destroyed the crops; one owner's cattle might have more heavy-footed bulls, and less lightfooted heifers), the Restatement would permit apportionment because there is a reasonable basis (i.e., the number of cattle owned) to apportion liability.[14] *See Bell Petroleum Servs.*, 3 F.3d at 903. Importantly, the Restatement, unlike the panel, does not require "adequate records" of the harm caused by each animal; the farmer is not required to stand by his crop at all times and meticulously record each step taken by each animal, to trace the harm done back to

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[14] The Restatement specifically contemplates the use of the cattle hypothetical in the context of pollution damages:

> Such apportionment is commonly made in cases of private nuisance, where the pollution of a stream, or flooding, or smoke or dust or noise, from different sources, has interfered with the plaintiff's use or enjoyment of his land. Thus where two or more factories independently pollute a stream, the interference with the plaintiff's use of the water may be treated as divisible in terms of degree, and may be apportioned among the owners of the factories, on the basis of evidence of the respective quantities of pollution discharged into the stream.

Restatement (Second) of Torts § 433A(1) cmt. d.

the individual cattle owners.[15] Indeed, this is precisely what the "reasonable basis" standard is designed to avoid: The whole point of Restatement § 433A is that no *specific* evidence is required for apportionment so long as the evidence and method used are "reasonable."[16] Further, the Restatement embraces "simple" considerations rejected by the panel—the number of cattle owned is a "simple," yet sufficient, basis for apportionment.

Even though it is impossible to determine the exact proportion of the contamination attributable to the Railroad parcel, the percentage of land ownership, like the number of cattle, provides one reasonable factor upon which to apportion liability under the Restatement. *See United States v. Twp. of Brighton*, 282 F.3d 915, 919-20 (6th Cir.2002) (holding that geographic divisibility may provide a basis for apportionment of CERCLA liability); *United States v. Hercules, Inc.*, 247 F.3d 706, 717-18 (8th Cir.2001) (same).

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[15] Under the Restatement, the burden is on the plaintiff (i.e., the farmer) to prove each defendant was a "substantial factor" in causing a single harm. *See O'Neil v. Picillo*, 883 F.2d 176, 179 n. 4 (1st Cir.1989). Under CERCLA, our sister circuits have placed the burden of showing a reasonable basis for apportionment on the defendant. *Id.* Nevertheless, that the burden rests with the CERCLA defendant to establish a reasonable basis for apportionment, has no bearing on what the apportionment test is and what proof is required to meet that test.

[16] "Records" are not a required type of proof for apportionment under the Restatement, unlike other areas of substantive law where specific evidence is required—e.g., for conveyance of an interest in land, a memorandum in writing signed by the party to be charged is required, *see, e.g.*, Cal. Civ.Code § 1624, and treason requires the testimony of two witnesses to the same overt act, U.S. Const. art. III, § 3, cl. 1.

Second, the panel got its facts wrong, or more precisely, invented convenient facts. The district court's findings of fact, which the panel does not find to be clearly erroneous, contradict the panel's appellate factfinding that the B & B facility was a "dynamic, unitary operation." *See* Panel Op. at 944; *see also Amadeo v. Zant*, 486 U.S. 214, 228, 108 S.Ct. 1771, 100 L.Ed.2d 249 (1988) (rebuking the appellate court for ignoring the dictates of the clear error standard and engaging in "impermissible appellate factfinding"). The panel's labeling the operations on the B & B facility as "dynamic" and "unitary" is a convenient blanket under which to hide the failure to look the facts in the face.

The facts found by the district court show quite different operations took place on the Railroad parcel:

> Relatively fewer activities that could result in releases were conducted on the Railroad parcel. Daily operations that resulted in releases of hazardous substances occurred on the B & B parcel. *Past releases at the Railroad parcel could not have contributed more than ten [percent] (10%) of the overall site contamination* given the fact that the predominant activities conducted on the [0.9 acre] Railroad parcel through the years were storage and some washing and rinsing of tanks, other receptacles, and chemical application vehicles. Mixing, formulating, loading, and unloading of ag-chemical hazardous substances, which contributed most of the liability causing releases, were predominantly carried out by B & B on the [3.8 acre] B & B parcel.

Atchison, 2003 WL 25518047, at *88 (emphasis added). The district court's findings not only undermine the panel's assertion that the B & B site was

an inseparable facility with a "dynamic, unitary operation," but also provide a reasonable basis for separating the Railroad parcel from the rest of the facility to apportion liability.[17] The appendix, an overhead image of the B & B facility, tellingly shows how, as the district court found, substantially fewer contamination-causing activities were conducted on the Railroad parcel (labeled "Leased Property"), as compared to the B & B parcel (labeled "Brown & Bryant Property").

I also note the panel's original opinion held that the B & B parcel "is distinct from the portion leased from the Railroads," which further supports the district court's apportionment calculations on the basis of percentage of land ownership. *See Burlington Northern*, 502 F.3d at 801. Recognizing, no doubt, that this finding undermines its position, the panel excises this finding from its amended opinion, without explanation.

B.

Second, the panel holds that the period the Railroads leased their parcel (13 years) as compared

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[17] The panel contends apportionment is not possible because the district court found "B & B used the Railroad parcel as part of its total agricultural-chemical operations." Panel Op. at 944 n. 30. That is painting with a broad brush over the details; the details give the true picture. The panel's contention merely begs the apportionment question. That B & B used the Railroad parcel as part of its operations says nothing about whether liability may be apportioned between the Railroad parcel and the B & B parcel. The answer to that question lies in the undisputed findings of the district court that different operations took place on each parcel and the contamination on the Railroad parcel could have caused no more than 10% of the overall contamination. *See Atchison*, 2003 WL 25518047, at *88.

to the entire period of contamination (29 years) is a legally insufficient basis for apportionment. Panel Op. at 944, 945. The panel reasons there is an "evidentiary vacuum" about the contamination attributable to the pre-lease period, and no evidence suggests contamination was constant over the entire period. *Id.* at 945.

The panel errs in concluding there is an "evidentiary vacuum" regarding the pre-lease contamination. The panel itself notes some contamination occurred *before* B & B leased the Railroad parcel. *Id.* at 942. Further, B & B implemented procedures to reduce contamination *after* it leased the Railroad parcel.[18] Thus, the district court's assumption of constant contamination over the entire period not only provides a reasonable basis to apportion liability, but, if anything, *overestimates* the contamination attributable to the Railroad parcel.

Further, the district court's reliance on period of ownership finds support from the Restatement hypothetical discussed above. Just as it is reasonable to assume that each of the cattle caused an equal amount of harm even though some of the cattle may have done no harm to the land, it is also reasonable to assume that each year of ownership caused an equal amount of contamination, even though the contamination may have been worse in some years than in others. *See also Bell Petroleum Servs.*, 3 F.3d

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[18] In the first twenty years of its operations (from 1960 to 1980), B & B "took almost no precaution to prevent the release of hazardous agricultural chemicals into the environment." *Atchison*, 2003 WL 25518047, at *26. At trial, a B & B executive testified that in 1980, B & B lined the sumps with concrete boxes, and in 1984, B & B built a contained area for rinsing equipment to prevent chemicals from draining to the sumps.

at 903-04 (holding apportionment is possible among the sequential owners of a chrome-plating site, even though the records of the chrome-plating activities were incomplete); *Hercules*, 247 F.3d at 718 (noting apportionment is possible where "two defendants, independently operating the same plant, pollute a stream over successive periods of time" (citation omitted)). Thus, the panel also errs in rejecting apportionment based on period of ownership.[19] In sum, despite two bases for apportionment of liability approved by the Restatement and our sister circuits—percentage of land ownership and period of ownership-the panel erroneously imposes joint and several liability on the Railroads for the entire clean—up cost of the B & B facility.

III.

Unlike the Railroads, Shell contested its liability on appeal. The panel holds Shell liable as an "arranger," which is defined as any person who "*arranged for disposal or treatment* . . . of hazardous substances *owned or possessed* by such person." 42 U.S.C. § 9607(a)(3) (emphases added). CERCLA does not define "arranged for." We have interpreted "arranged for" to rest on two alternate bases for liability: "direct" and "broader" arranger liability.

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[19] The only clear error the panel finds is the district court's exclusion of D-D from the contamination attributable to the Railroad parcel. Panel Op. at 945. The panel so holds because there was evidence that D-D leaked on the Railroad parcel and no evidence that it did not. *Id.*; *see Atchison*, 2003 WL 25518047, at *90. I do not disagree with this holding, but note that this error merely alters the proportion of liability attributable to the Railroads and perhaps may be a basis for remand. It has no impact on the ultimate conclusion that the Railroads cannot be jointly and severally liable for the entire clean-up cost.

McColl, 294 F.3d at 1054-55. The latter is at issue here because no one claims Shell directed the dumping of hazardous substances onto the B & B facility.

Under "broader" arranger liability, an entity need not have direct involvement in an arrangement for the disposal of waste; liability may be imposed if the entity had "sufficient control over the process that created the waste." *Id.* at 1055. We have no clear test for establishing broader arranger liability. *Id.* at 1055-56. Nevertheless, "actual control" over the hazardous substance is a "'crucial element'" of broader arranger liability, and mere "authority to control," were it actually established by the evidence, simply does not suffice. *See id.* at 1055, 1057.

The panel imposes arranger liability on Shell as a seller of the agricultural product D-D to B & B, which then contaminated its facility in part with Shell's product. The panel notes that because unintentional practices like "leaking" are included within the definition of "disposal" under CERCLA, "disposal" need not be purposeful. Panel Op. at 949. Thus, according to the panel, "an entity [like Shell] can be an arranger even if it did not intend to dispose of the product." *Id.* at 949.

The panel's statutory interpretation is unpersuasive. Even though the definition of "disposal" may include unintentional practices, mere "disposal" does not constitute *arranger* liability. Instead, arranger liability requires the defendant to have "arranged for" such *disposal* (not just arranged for the sale). This connotes an intentional action toward achieving the purpose: disposal. *See* Webster's Third New International Dictionary 120 (1993) (defining "arrange" as "to make preparations for"). It is an

oxymoron for an entity *unintentionally* to make preparations for disposal.

Further, the statutory definition of "disposal" does not cover the "sale" of a hazardous substance, which was the exclusive purpose of the contract between Shell and B & B. That leakage *may* occur during the transfer of D-D from the common carrier to B & B's storage tanks cannot mean that Shell, as a seller, *arranged for* such leakage.[20] By imposing arranger liability on a mere seller, the panel stretches the meaning of arranger liability beyond any cognizable limit and creates inter-circuit splits. *See, e.g., AM Int'l*, 982 F.2d at 999 ("[C]ourts . . . have consistently held that the mere sale of a product is not 'arranging for disposal' under [CERCLA]."); *Fla. Power & Light Co. v. Allis Chalmers Corp.*, 893 F.2d 1313, 1317 (11th Cir.1990) ("If a party merely sells a product, without additional evidence that the transaction includes an 'arrangement' for the ultimate disposal of a hazardous substance, CERCLA liability [can]not be imposed.").

Even assuming a defendant can be held liable as an arranger for the mere sale of a product, the panel's holding is inconsistent with *McColl*, which requires actual control over the hazardous product as a crucial element of arranger liability. *See McColl*, 294 F.3d at 1055. In *McColl*, the United States was sued under CERCLA for the clean-up costs of a site contaminated with fuel. The site was used to manufacture war supplies for the United States under government contracts, and the United States

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[20] The panel's conclusion is tantamount to saying that a bartender "arranges for the disposal" of bourbon onto the bar when he sells a glass of bourbon F.O.B. patron, who, while carelessly lifting the glass, spills the bourbon.

was aware that waste was being produced. *Id.* at 1050-51. We held the United States could not be liable as an arranger because it did not exercise actual control over the disposal of fuel, even though it had the authority to control such disposal. *Id.* at 1057-58. The panel creates an intra-circuit conflict by reducing *McColl*'s actual control requirement from a "crucial element" for arranger liability to a mere "pertinent consideration," which is "informative only in light of additional considerations." Panel Op. at 950-51.[21]

The panel holds Shell liable as an arranger because:

> (1) [D-D] [s]pills occurred *every time* the deliveries were made; (2) Shell arranged for delivery and chose the common carrier that transported its product to the Arvin site; (3) Shell changed its delivery process so as to require the use of large storage tanks, thus necessitating the transfer of large quantities of chemicals and causing leakage from corrosion of the large steel tanks; (4) Shell provided a rebate for improvements in B & B's bulk handling and safety facilities and required an inspection by a qualified engineer; (5) Shell regularly would reduce the purchase

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[21] The panel's attempt to sidestep *McColl* is inapposite. The panel notes that *McColl* viewed control as a "crucial element" of arranger liability only because the United States in that case, unlike Shell here, never owned the hazardous substances before disposal. Panel Op. at 951. Even though the panel may have wished it were otherwise, *McColl*'s holding is not so limited: "We agree with the Oil Companies and the district court that *control is a crucial element of the determination of whether a party is an arranger* under § 9607(a)(3)." *McColl*, 294 F.3d at 1055 (emphasis added).

> price of the D-D, in an amount the district court concluded was linked to loss from leakage; and (6) Shell distributed a manual and created a checklist of the manual requirements, to ensure that D-D tanks were being operated in accordance with Shell's safety instructions.

Id. at 950-51 (emphasis in original).

This is insufficient to establish Shell's "actual control" of the D-D transfer from the tank-trucks to B & B's storage tanks. This evidence at best establishes Shell's *influence* over the transfer process (e.g., through rebates, the provision of manuals and checklists, etc.), which falls far short of the *actual control* required by *McColl*. Shell did not own or operate the B & B facility, nor did any Shell employees play a role in the D-D transfer. The evidence in fact establishes that Shell relinquished control over the D-D once the common carrier arrived at the B & B site and *before* the transfer of D-D.

The district court found, and the panel does not dispute, "stewardship" of D-D passed to B & B when the common carrier arrived at the B & B facility. *Atchison*, 2003 WL 25518047, at *23. The Conditions of Sale stated B & B would "furnish and maintain facilities for receiving and storing all Products delivered, which are safe, adequate and in compliance with all applicable governmental requirements and *shall unload each delivery promptly and at Buyer's own risk and expense*." *See id.* at *68 (emphasis added). Thus, Shell did not have "actual control" over the transfer of D-D and cannot be held liable as an arranger.[22]

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[22] The panel also imposes joint and several liability on Shell, rejecting as legally insufficient the district court's appor-

IV.

En banc rehearing was necessary because the panel's broad definition of arranger liability and its erroneous application of CERCLA apportionment principles impose CERCLA liability where Congress did not intend. The panel decision creates disorder in CERCLA jurisprudence by causing intra- and inter-circuit conflicts in an area where uniformity over the interpretation of the federal statutory law, based on commonlaw principles, is of the utmost importance.

Under the panel's CERCLA apportionment analysis, a landowner who leases a lot to an outfit that contaminates the land while going broke will be stuck

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tionment calculations based on the amount of D-D spilled during the transfer process. Panel Op. at 945-48. Even assuming Shell can be held liable as a CERCLA arranger, the panel errs in holding Shell jointly and severally liable for the *entire* contamination, including contamination from products Shell did not sell to B & B.

The panel notes it does not hold Shell liable for the clean-up of the "Dinoseb hot spot," a discrete area on the east side of the B & B parcel that was contaminated by a major Dinoseb (a Dow product) spill in 1983. *See id.* at 952 & n. 35. According to the panel, this means Shell is not liable for contamination from products it did not sell. *Id.* The panel is quite incorrect. First, the panel still holds Shell liable for Dinoseb spills outside the discrete "Dinoseb hot spot" and elsewhere on the B & B facility, even though Shell did not manufacture or sell Dinoseb. *See Atchison*, 2003 WL 25518047, *91 ("Th[e] [EPA's] removal action [on the "Dinoseb hot spot"] was intended to remediate only the [D]inoseb that contaminated the ["Dinoseb hot spot"], not the entire site."); Panel Op. at 945-48. Second, Shell's arranger liability is premised *solely* on the D-D spills, not spills of Nemagon or Dinoseb. *See* Panel Op. at 945-51. Regardless, the panel holds Shell jointly and severally liable for the contamination resulting from all three products-Nemagon, Dinoseb, and D & D-spilled on the B & B facility. *See id.* at 945-48.

with the entire clean-up bill—notwithstanding the leased lot's size compared to the overall facility at which pollution disposal occurred, the length of the lease compared to the period of the contamination, or the contamination actually attributable to the leased lot. That is, the lessor will pay all clean-up costs unless he comes up with records that show how much was spilled, where, and when—although the panel candidly acknowledges that no one could be expected to keep such records. The lessor will also pay unless he can come up with records of the cleanup and the cost thereof, even if he did not do the clean-up.

Further, under the panel's novel definition of "arranger" liability, sellers of chemical products will be saddled with the entire clean-up cost of a facility contaminated in part with their products, even if they lacked control over the products spilled following the sale.

Accordingly, I respectfully dissent from the denial of rehearing en banc.

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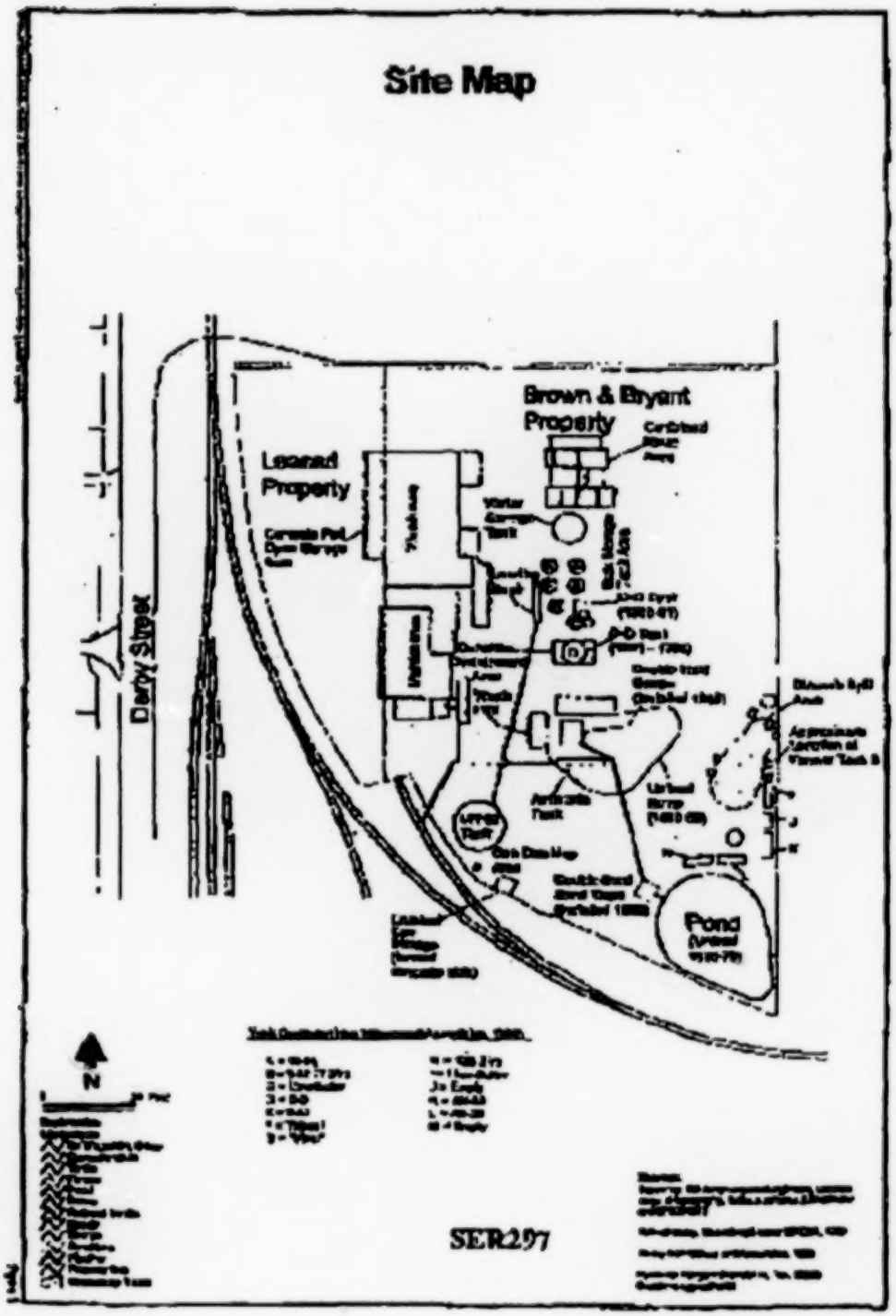
APPENDIX



APPENDIX B

UNITED STATES DISTRICT COURT,
E.D. California.

Nos. CV-F-92-5068 OWW, CV-F-96-6226 OWW,
CV-F-96-6228 OWW

UNITED STATES OF AMERICA AND
DEPARTMENT OF TOXIC SUBSTANCES CONTROL
OF THE STATE OF CALIFORNIA,
Plaintiffs,

v.

THE ATCHISON, TOPEKA & SANTA FE
RAILWAY COMPANY *et al.*,
Defendants.

and

Related Cross-Claims and Third Party Actions.

July 15, 2003

AMENDED FINDINGS OF FACT AND
CONCLUSIONS OF LAW
Fed.R.Civ.P. 52(a)

OLIVER W. WANGER, *United States District Judge.*

A bench trial was held in the above entitled matter between March 3-May 14, 1999 in Fresno, California. Plaintiff United States EPA was represented by James MacAyeal, Esq., Victoria Lang, Esq. and Stephanie Johnson, Esq. Plaintiff State of California DTSC was represented by Reed Sato, Esq. Defen-

dants Southern Pacific Transportation Co. and the Atchison, Topeka & Sante Fe Railroad Co. ("Railroads") were represented by Ike Lasater, Esq., Nance F. Becker, Esq., and Marc A. Zeppetello, Esq. Defendant Shell Oil was represented by Randall Heldt, Esq., Michael Johnson, Esq., and David Earle, Esq. On May 24, 2002 the court issued Findings of Fact and Conclusions of Law pursuant to Fed.R.Civ.P. 52(a).

On August 22, 2002 the court issued an Order to Modify Findings of Fact and Conclusions of Law, and then on September 26, 2002 the court issued an Order amending the Findings of Fact and Conclusions of Law based on a stipulation by the parties. The parties subsequently filed various motions to amend the court's Findings of Fact and Conclusions of Law under Fed.R.Civ.P. 52(b) and 59(a). On May 28, 2003 the court issued a Memorandum Opinion and Order ruling on the parties' motions to amend the Findings of Fact and Conclusions of Law, granting in part and denying in part the parties' motions. On June 13, 2003, the court issued an errata Order on defendants' motions to amend.

The following amended findings of fact and conclusions of law are made pursuant to Fed.R.Civ.P. 52(a).

I. BACKGROUND

In 1975, Brown & Bryant, Inc. ("B & B") began leasing an acre of land adjacent to a four acre parcel it owned in order to complement its agricultural chemical distribution business in Arvin, California. The leased acre was jointly owned by the Defendant Southern Pacific Transportation Co. and the Atchison, Topeka & Sante Fe Railroad Co. B & B commenced

business at the Arvin property in 1960 and ceased operations in 1989.

B & B used the leased acre ("Railroad Parcel") over the lease term to park the fertilizer and chemical spray rigs used to transport various chemicals to its customers, until 1989. In 1983, the State of California's Department of Health Services ("DTSC") found Brown & Bryant in violation of several hazardous waste laws. A separate United States Environmental Protection Agency ("EPA") investigation found evidence of substantial soil and groundwater contamination at B & B's Arvin operations.

Pursuant to cleanup authority under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601 et seq. (CERCLA), the EPA and DTSC incurred remediation costs. A bench trial was held before the court from March 30, 1999 to May 14, 1999. B & B is bankrupt. Its default has been entered. B & B did not appear at trial. The state and federal governments seek to recoup their costs from the Railroads and Shell. All parties submitted proposed Findings of Fact and Conclusions of Law on July 19, 1999. All parties responded to the proposed facts and conclusions by August 18, 1999. Closing arguments were held before the court on September 28, 19 99.

II. PRELIMINARY MATTERS

A. *Legal Standard*

In trials without juries, Fed.R.Civ.P. 52(a) requires a court to "find the facts specially and state separately its conclusions of law thereon." *See Barnett v. Sea Land Service,* 875 F.2d 741, 744 (9th Cir.1989).

B. *Judicial Notice*

Both the Railroads and Shell move for judicial notice of EPA responses to June 1999 Freedom of Information Act requests regarding the chemical 1,2,3-trichloropropane. Federal Rule of Evidence 201 provides in pertinent part:

> A judicially noticed fact must be one not subject to reasonable dispute in that it is either (1) generally known within the territorial jurisdiction of the trial court or (2) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned. A court shall take judicial notice if requested by a party and supplied with the necessary information.

The EPA documents sought to be judicially noticed state that EPA has concluded 1,2,3-trichloropropane is not a hazardous substance under CERCLA and that its listing in the Code of Federal Regulations was an error. The letters are judicially noticed as to their existence and the finding of non-hazardousness as to 1,2,3-trichloropropane.

III. FINDINGS OF FACT

A. *B & B's Arvin, California Operations*

1. B & B first began operating a fertilizer and agricultural chemical storage, distribution and custom ag-chemical applicator facility at 600 S. Derby Street, Arvin, California in 1960 on a leased parcel of land previously used as farmland. *See* Ex. G-1; Ex. G-2, Pre-Trial Order, March 2, 1999, Undisputed Fact 1.

2. The B & B plant ultimately came to include two parcels: (1) the original parcel leased in 1960 and later purchased by B & B in 1976 (the B & B parcel);

and (2) a smaller adjoining parcel to the west of the first parcel owned jointly by The Atchison, Topeka & Santa Fe Railway (now known as the Burlington Northern and Santa Fe Railway Company) and the Southern Pacific Transportation Company (now known as the Union Pacific Transportation Company) (the "Railroads") (the Railroad parcel). *See* Ex. G-l; Ex. G-2.

3. The overall size of B & B's Arvin operations was 4.7 acres: the Railroad parcel is 0.9 acres and the adjoining B & B parcel is 3.8 acres. *See* Ex. G-6, at 4 (B & B parcel is 3.8 acres); Ex. G-3, at 1 (B & B Arvin Plant is 4.7 acre site).

4. Before the 1975 lease, the Railroads and B & B entered into a 1960 rail spur agreement allowing B & B to construct and use a rail spur along the west side of the warehouse. *See* Ex. G-1; Testimony of John H. Brown at 779 ("Brown").

5. Generally, any property to the west of the warehouse is Railroad parcel. *Id.* at 778; Ex. G-28.2.

6. The exclusive purpose of the 1975 lease between the Railroads and B & B was for parking "fertilizer rigs." *See* Ex. G-19. A "fertilizer rig" is a generic term that refers to any application rig, whether for ag-chemicals, weed killer or fertilizer. Brown at 1003.

7. During the lease, the Railroads inspected the plant and knew that B & B was in the business of distributing chemicals other than fertilizers and that B & B used the leased parcel as a part of its total agricultural chemical operations. *See* Ex. G-28.1 ("Fenced open storage of farm chemicals and miscellaneous equipment. This leased area was fully used as an integral part of the adjacent farm chemical

distribution facility."); Ex. G-28.2 ("active site fully used for handling & storage of farm chemicals"); Brown at 1004 (Railroads inspected property); *Id.* (B & B's logo, prominently displayed on the large UN-32 tank, stated: "Brown & Bryant Agricultural Chemicals"); J. Stuart Ondeck Dep. at 67 (Railroad inspector noted in 1978: "Fenced open storage of farm chemicals and miscellaneous equipment. This leased area is fully used as an integral part of the adjacent farm chemical distribution facility.").

B. *Site Characteristics*

8. The 4.9 acre property is located in an alluvial fan characterized by vertically heterogeneous soils including sands, silts, clays, and gravels of various porosities. Average rainfall is approximately 6 inches. ROD (Ex. 1466) at 6; Testimony of Don R. Woody ("Woody") at 393:9-24, RI/FS, Ex. 1464A, at RI-3-2.

9. The groundwater at the site is divided into three zones: 1) the upper level, or A-zone, is a perched aquifer encountered 60-80 feet below ground surface (bgs); 2) the next level, or B-zone, is encountered at approximately 150 feet bgs; the A and B aquifers are separated by a generally impervious, but leaky, clay aquitard; 3) the deepest groundwater, the C-zone, at about 200 feet bgs, is a regional confined aquifer separated from the B-zone by an impermeable layer known as the Corcoran clay. Only the C-zone is currently used as a source of drinking water. Woody, 394:17-395:8; 499:1-9; RI/FS (Ex. 1464), Fig. 3-3; Testimony of Thomas Huetteman ("Huetteman") at 668:5-8 (no planned use of B-zone for drinking water).

10. The water in the A-zone flows in a generally west/southwest direction at a rate of 53' per year. The

flow direction varies at different locations under the site.

11. The nearest drinking water well is Arvin municipal well No. 1 (Arvin well), located 1700 feet southwest of the site. This well draws water exclusively from the C-zone aquifer.

12. Although there is no evidence that the C-zone is at present risk of contamination from this Site, the EPA is concerned about potential contamination of this well due to the fact that the gravel packing around the well may permit contaminated water to infiltrate from the B-zone. No such contamination has occurred to date.

13. To the parties' knowledge, no additional domestic wells are planned in the vicinity of the site. Testimony of Robert Mandel ("Mandell") at 265:1-17; Woody, 400:1-403:8; Huetteman, 610:7-12, 615:24-617:6; Testimony of Cynthia Wetmore ("Wetmore") at 2074:1-5, 2076:8-14.

14. The B-zone flows in a southern or easterly direction, away from the Arvin well. Testimony of Dr. Daniel Stevens ("Stephens") at 3699:7-14.

C. *The Arvin Facility Stored the Chemicals D-D, Nemagon, and Dinoseb.*

15. B & B's Arvin site business sold to and applied to fields of local growers, agricultural chemical products manufactured by various companies. Brown at 755. B & B stored and distributed several Shell agricultural chemical products, including the soil fumigants D-D and Nemagon. *Id.* at 757.These products were designed to kill nematodes, which are microscopic worms that attack the roots of crops. Testimony of William Haverland ("Haverland") at 2175-76.

16. Shell D-D is a nematocide. Its dominant constituents include a combination of 1,2-dichloropropane and cis-1,3-dichloropropene, and trans-1,3-dichloropropane with a small quantity of 1,2,3-trichloropropane. Testimony of Dr. George Deeley ("Dr.Deeley") at 2738-39, 2741-42. Shell Nemagon contains dibromochloropropane, or DBCP. *Id.* at 2748-49.

17. B & B also carried pesticide products (Vidden-D, Telone, and Telone II) manufactured by the Dow Chemical Company. B & B's in-house policy was to sell the Dow products out of B & B's Shatter, California location. Brown at 762-63. The Dow products B & B sold out of Arvin were generally products that Shell did not make, such as dinitro (dinoseb) weed killer. *Id.* at 763.

18. D-D was available for purchase in either 55-gallon drums or in bulk tank truckloads. Ex. 1080; Haverland at 2249:9-2250:4. Prior to the mid-1960s, B & B purchased D-D in 55 gallon drums. By the mid-1960s, it purchased the D-D in bulk. Brown at 757:6-758:3.

19. D-D was manufactured at Shell's refineries in Norco, Louisiana and Deer Park, Texas and sent by railcar to storage facilities which Shell leased from GATX in San Pedro, California. Haverland at 2200:23-2202:1. When B & B wanted to purchase D-D, it would place an order with Shell's order desk located in San Ramon, California. The order center would then call the facility from which the product was being shipped in order to release it and make arrangements for shipment of the product to the customer. *Id.* at 2203:11-25.The amount of product paid for by B & B was determined by weighing the common carrier's empty truck on the way into the

GATX facility to obtain the tare weight and then weighing the full truck on the way out. The tare weight is deducted from the gross weight, to reach the net weight of the product. *Id.* at 2209:24-2211:5; Ex. 1199, 3-4.

20. Shell's D-D sales to B & B for 1972 were 106,000 gallons. *1973 Marketing Agreement, Railroads' Trial Ex.* 1070, Bates No. S000266. B & B's Nemagon purchase for 1972 was 4,000 gallons. *Id.* In 1979, the D-D sales was 125,000 gallons. *1980 Marketing Agreement, Railroads' Trial Ex.* 1071, Bates No. 063502. In 1982, Shell's D-D sales to B & B were 141,000 gallons. *1983 Marketing Agreement, Railroads' Trial Ex.* 1072, Bates No. 063323. In 1983, B & B's D-D sales were 132,340 gallons. *1984 Marketing Agreement, Railroads' Trial Ex.* 154 Bates No. 063126. Shell estimated its B & B D-D sales for 1984 were 26,000 gallons. *Id.*

21. D-D bound for the Arvin facility was shipped by common carrier trucks from the GATX facility in San Pedro. *Id.* at 2207:12-17.There is no evidence D-D was ever shipped by railcar to the Arvin facility. D-D was shipped by tank truck to the Arvin facility "FOB Destination." It was Shell's intent that B & B take responsibility for the product when it arrived at B & B's facility. *Id.* at 2207:15-2209:22, 2225:1-21; *see e.g.*, Exs. 1199, 2, 1080. Shell intended that B & B should be responsible for handling D-D after the common carrier tank truck arrived at Arvin. *See, e.g.*, Ex. 1199, Conditions of Sale, at 7, section 3.

22. Shell did not sell D-D FOB shipping point (Texas or San Pedro). No testimony was adduced that Shell ever required B & B to take control of and be responsible for all aspects of delivery from the shipping point. Shell sold D-D as a new product. It

was not a waste product. Shell did not sell D-D on consignment to B & B at any time. B & B did not have to formulate D-D for use.

23. A D-D pull rig was a 500-gallon or 600-gallon tank mounted on a two-wheel trailer. Testimony of Lonnie Merryman at 11-12, 83 ("Merryman"). The D-D pull rig had 12 to 16 hollow shanks, or "tines," with hoses in each shank to pump the D-D soil fumigant into the ground. *Id.* at 12, 83.When used as a pesticide, the product is injected into the soil about 6 to 12 inches below the surface, the soil is then sealed with a drag ring roller or press wheel, and the D-D volatilizes in the soil killing nematodes. Haverland at 2175-2176.

24. Dragging a D-D rig in the field generated a great deal of dust. The D-D rigs had filters to trap sediment. Merryman at 13. The D-D pull rigs had a filter at the bottom of the D-D rig tank and a smaller three-quarter inch filter for the pump that transferred D-D to the shanks on the back of the rig. *Id.* at 13-14. Each of the 12 to 16 tubes in each shank had a small strainer. *Id.* at 12-14, 83.

25. Before taking D-D rigs to the field, B & B servicemen put on rubber gloves, opened the strainer caps and checked the filters and strainers to see if they needed to be cleaned. *Id.* at 14-18, 81-82. Checking filters resulted in spills of D-D onto the ground of one quart or less. *Id.* at 16, 81; Brown at 1005.

26. D-D rigs were parked on the Railroad parcel. *Id.* at 15-16, 81, 113-14; Brown at 1003. Filters were checked 20 times a month, at least. Merryman at 113.

27. D-D rigs were used all year, but mostly in the summer. *Id.* at 15, 114.

28. The D-D rigs were not usually washed out unless they became full of sediment. *Id.* at 14, 16, 110.

29. No Shell employee ever directed or assisted the washing out of the D-D rigs. *Id.* at 110.

30. D-D rigs had a plastic or "corlon" sight gauge tube on the end of the tank. *Id.* at 14-15; Brown at 822. The D-D tank and the sight gauge were connected so that if the tank were half full, the sight gauge would read half full. Merryman at 15.

31. Exposure to sunlight made these tubes brittle. Brown at 822; Ex. 1123, at Bates No. S003566 (Shell technical bulletin: "sight tube, (a poor but acceptable alternate) . . . Tube material must not be attacked by tank contents or the natural environment (sunlight).").

32. Sight gauges regularly broke. A hard wind would cause breakage of brittle gauges. When this occurred the contents of a half-filled tank would slowly spill on the ground through the sight gauge. Merryman at 104; Brown at 823. B & B was not always "quick enough to replace" sight gauges and "would lose material." Brown at 822.

D. *D-D Spills Occurred from D-D Nurse Tanks*

33. Nurse tanks were four-wheeled mobile tanks that were generally of two sizes: 2,000 and 2,600 gallons. Merryman at 9, 69. Nurse tanks were stationed at the grower's field to receive liquid product from B & B's tank truck into either kit tanks mounted on tractors or into tanks on a pull rig. *Id.* at

9; Brown at 841. B & B would move the nurse tank from one farmer's field to another. *Id.* at 69.

34. B & B's employees rinsed out nurse tanks at the wash rack on the B & B parcel unless the nurse tank was going back out to another job the next day with the same material. *Id.* at 16-17, 80.If the nurse tanks were going to be idle, they would be washed out and parked on the Railroad parcel. Sometimes too many nurse tanks were lined up for washing, so the D-D nurse tanks were parked west of the warehouse on the Railroad parcel. *Id.* at 16-17.

35. The D-D nurse tanks also had filters at the bottom of the tank that had to be checked prior to use. *Id.* at 17, 80, 82.The process of checking nurse tank filters sometimes caused spills of less than a gallon of D-D rinsate. *Id.* at 17, 81-82.Sometimes a pint or a quart of D-D spilled. *Id.* at 81.

36. The servicemen preferred to check the filters near the wash rack due to the effect D-D could have on the employees' skin. Merryman at 82-83.

37. Nurse tanks also had sight gauges that broke from time to time. *Id.* at 112.

E. *Spillage and Transfers to D-D Bobtails During Downloading Occurred All Over the Arvin Site After a Windstorm Destroyed the Bulk Storage Tank*

38. A "bobtail" is a two-ton truck with a 1,800 to 2,000 gallon tank mounted on the truck. Merryman at 9-10. The bobtail was used to transport fertilizer or D-D over the roads to nurse tanks. *Id.* at 9, 19, 69.

39. The transfer of liquid material by B & B employees from bulk storage tanks located on the B & B parcel to bobtails commonly resulted in leaks

and spills to the ground on a daily basis, wherever transfer took place. *Id.* at 34-37.

40. Sometimes 5-gallon buckets would be used to catch material-not just D-D-when hoses were being unhooked from tanks. The collected material would be put back in the tank. Merryman at 36.

41. In 1978, the bulk D-D storage tank used to store Shell D-D was destroyed in a windstorm. B & B then used converted stainless steel milk trailers to store bulk D-D. Merryman at 19-21, 61; Brown at 794-95, 798-99. These temporary tanks were kept all over the Arvin site, including the area west of the warehouse-the bobtails would download material from the tanks. Merryman at 19-21.

F. *Dinoseb Was Stored on the Railroad Parcel*

42. B & B stored containers of Weed Killer D (dinoseb) in 55-gallon drums and 5 gallon cans on a concrete apron along the warehouse wall on the Railroad parcel. Merryman at 31-32. B & B stored the Weed Killer D outside because if the drums and cans leaked, it was "real messy." *Id.* at 31-32, 101. Moreover, B & B did not store Weed Killer D in the warehouse because it was a low cost product "that nobody . . . would steal." By contrast Nemagon was stored in the warehouse. *Id.* at 32.

43. B & B used a hose to wash off the apron when the dinoseb leaked. Dinoseb washed on to the ground. *Id.* at 32-33; *see also* Mandel at 263-64; Woody at 337, 441.

G. *The Warehouse Occasionally Was Washed Out*

44. Cans of products more valuable than dinoseb, such as Nemagon, Fumazone and Round-Up, were stored inside the warehouse. Merryman at 33-34.

Before occasional company barbecues, B & B employees emptied the warehouse, swept the concrete floor and hosed it out, washing the water out of all three doors of the warehouse, including the doors that were on the west side of the warehouse. *Id.* The rinsate was washed onto the ground.

H. *Empty Cans were Stored on Railroad Parcel.*

45. B & B retrieved used cans of pesticide products from growers' fields and stored the used, unrinsed cans for as long as a year before crushing them and sending them to a landfill. Brown at 829; Merryman at 113.

46. B & B stored used 55 gallon drums of dinoseb on the Railroad parcel. *Id.* at 31.

47. Every two or three months the cans would be collected and crushed. Crushing the cans near the UN-32 tank on the B & B parcel caused residual liquid to spill on the ground. Merryman at 62-65. The wet areas were two to three inches deep and as much as six feet across. *Id.* at 100.

48. Weed Killer-D (dinoseb) has a particular dark yellow-orange color when it makes contact with the ground. Merryman at 74.

49. Mr. Merryman, a B & B employee from 1972 to 1981, testified that there were always "small leaks." *Id.* at 75.

50. Shell Nemagon, which contained DBCP, came to the Arvin plant in 30-gallon drums and 5-gallon drums. *Id.* at 28.After the 30-gallon Nemagon drums were emptied, they were stored on the Railroad parcel. *Id.* at 28-29. Residual contents of used Nemagon containers leaked onto the ground. *Id.* at 97-99.

51. Nemagon also came in 5-gallon cans. *Id.* at 29.After the 5-gallon cans were emptied, the cans would be brought back in the yard and stored at the can storage area marked as "D" on Exhibit G-100. *Id.* at 29-30.The 5 gallon empty cans were transferred to the Railroad parcel, where the empty 30-gallon Nemagon drums were stored, because the small can storage area became flooded when it rained. *Id.* at 30.

I. *Interaction between Run-off from the Railroad Parcel and the B & B Pond*

52. The B & B parcel was graded towards the southeast waste pond (pond). Merryman at 25, 45-46, 79, 92-93, 112; Brown at 779-80; Testimony of Gary J. Leary ("Leary") at 1833. Brown testified that a small pipe under the railroad spur tracks allowed the water on the Railroad parcel to drain to the pond. Brown at 779-80. Although there was a small berm around the pond before it was lined in 1979, a 12-inch pipe buried in the ground allowed water from the low area near the pond to drain into the pond. Merryman at 93.

53. When the sump near the B & B wash rack was lined in 1979, B & B installed a pipe to connect the sump to a lined sediment sump near the pond. Merryman at 25-27. B & B also connected this sediment sump to the pond, which was then lined. *Id.* Mr. Merryman testified that the purpose of the pond prior to 1980 was simply to collect rainwater runoff from the entire plant. *Id.* at 777-78. EPA documentation, its consultant, and another B & B employee suggest the pond was in fact connected to the sump as early as 1960. (Canonie Environmental Closure Plan-Arvin Facility [Ex. G-9, Vol. 2, AR0011, 5];

Dickey Depo., Ex. 3051, 40:10-21. Mr. Dickey worked at Arvin from 1970-77. Dickey Dep., 9:2-19.

54. The B & B plant was oiled with a dust binder, except for areas near concrete or the gravel under the tank farm. Merryman at 22-23, 78-80; Brown at 780; Leary at 1832-34, 1859-60.

55. The oiled surface developed cracks and flaws and showed exposed dirt. Merryman at 22-23; Leary at 1834.

J. [Stricken]

56. That a release of a hazardous substance occurs at the surface of the property does not per se establish that the substance reached the subterranean groundwater. See Testimony of Dr. Gary Chirlin ("Chirlin") at 1722:7-11, 1755:2-24.

57. To confirm a surface release migrated to groundwater requires: (1) sampling results showing a vertical trail of contamination from the surface to the groundwater, and (2) increased concentrations of contamination in the groundwater below and downgradient of the release point. Chirlin, 1678:17-1679:14.

58. Such a combination of factors is present on the B & B parcel. Dr. Chirlin did not observe it on the Railroad parcel. He found no evidence of an independent plume of groundwater contamination caused by surface releases on the Railroad parcel. Chirlin at 1680:16-1682:13, 1685:5-16; Chirlin Dep. at 70:11-71:14; Stephens at 3658:12-25, 3660:13-3661:1 (no continuous columns); 3701:4-11 (the groundwater data does not suggest a source on the Railroad parcel).

59. The remedial goal for the A-zone groundwater was 10-100 times the applicable Maximum Contaminant Levels (MCLs) the EPA sets for 1,2-DCP and the DTSC sets for chloroform, DBCP, 1,2-DCP, dinoseb, and EDB. The theory behind this goal was that, "at this level, you could leave the A-zone alone and you could let natural processes occur and it would not continue to impact the B-zone in a negative way." ROD, Ex. 1466, 12; Huetteman at 574:13-575:15.

60. The levels of contamination reported in the A-zone groundwater beneath the Railroad parcel above gridline 14 on Ex. 687, above well WA-03, are too low to require remediation. Huetteman 633:2-634:2; Stephens at 3960:6-3966:6. Even if hazardous substances were released in this area, they will not cause or contribute to the Governments' incurrence of response costs. *See* Huetteman at 634:23-637:12 (he did not evaluate whether any Railroad parcel1 [sic] spills impacted groundwater); Walton at 35:23-36:23, 38:12-18 (his model is intended to show a range of possibilities of a spill being followed by a runoff-producing rainfall event; it does not show the probability that a spill will reach the groundwater); 115:18-21, 116:17-117:8, 132:18-25, 183:10-23; 4118:22-4119:5 (he did not quantify the amount of any spill that theoretically could have reached the pond as runoff); Chirlin at 1583:1-20; 1671:4-10, 1672:2-11; 1692:11-18; 1716:2-19, 1717:2-13; 1718:4-11 (Dr. Chirlin has no opinion whether the releases he assumed occurred on the Railroad parcel reached groundwater in sufficient quantities to cause the concentration in the groundwater to exceed EPA's remediation goal of 10 times the MCLs).

61. The parties agree that the most important variable affecting the downward migration of any chemical substance released at the Arvin Site ground surface is the amount of water. Walton at 86:19-87:7; 88:5-9; Chirlin at 1747:15-25 (regardless of whether we are talking about surface runoff or downward migration, the flow of water containing dissolved chemicals is the source of groundwater contamination at Arvin); ROD, Ex. 1466, at 9.

62. Other factors affecting contaminant transport include: the wind and temperature (higher temperature and wind increase the rate of evaporation); the porosity of the soil; the amount of organic carbon in the soil; and the molecular weight and chemical properties of the particular contaminant.

63. When a material is spilled on the soil, a dynamic process occurs whereby some of the material volatilizes or evaporates into the air, and some of it enters the soil. Materials absorbed into the soil will continue to volatilize and, if water is present, will dissolve, evaporate and move with the water. If sufficient water is present, chemical material will move downward until it reaches a "residual saturation level," at which the material is static. Deeley at 2769:14-2773:12; 2795:13-2796:8; Stephens at 3762:5-22.

64. Evaporation from shallower soils alters the concentration gradient, which draws materials up from deeper soils. This is particularly pronounced beneath asphalt paving, which heats up more than the air and draws moisture out of the upper soil profile. This phenomenon is known as barometric pumping. Stephens at 3628:14-3631:23; Deeley at 2778:25-2779:23, 2782:6-18.

65. In the absence of added water, a spill of at least 500 gallons (on bare soil) or in excess of 10,000 gallons (on intact asphalt) of a volatile chemical such as 1,2-DCP would be required on the Railroad parcel, before a spill would reach groundwater in concentrations sufficient to require a remedial response. Stephens at 3681:5-3686:5; *See* Walton at 86:2-4 ("If you don't have water with the spill and you don't have preferential pathways, it [1,2-DCP or D-D] tends to evaporate and it takes a great b·g large spill to remotely reach the groundwater."). There is no evidence that a single spill of that magnitude ever occurred on the Railroad parcel. Memo. & Order re Shell motion for summary judgment, 3/19/99 ("Shell Memo. & Order"), undisputed factual finding 18.

66. According to the Governments, dinoseb and D-D contaminated the Site and moved down to the groundwater through focused infiltration. Dinoseb and DCP (a major D-D constituent) were transported to the groundwater by water. Walton at 75. Assuming the precipitation at Bakersfield is similar to the precipitation at the Arvin Site, there was sufficient water at the Site to dissolve organic liquid spills. *Id.* at 32, 75.

67. Dinoseb has moderate solubility and if there is no water movement, dinoseb will not tend to move to the groundwater table. *Id.* at 74. If a dinoseb spill is small and water is present, most or all of it would dissolve in water and be transported towards the groundwater. For large dinoseb spills, a portion of the spill would dissolve in water and infiltrate down into the groundwater. *Id.* at 77.The rest of the dinoseb would remain at the surface and in the shallow subsurface. *Id.* Dinoseb is present near the surface of both the Railroad parcel and the B & B parcel. *Id.* at

82. Residual dinoseb remaining on or near the surface provides a signature of locations where dinoseb infiltrated towards the groundwater through the vadose zone. *Id.*

68. A new spill of D-D has a vapor pressure approximately twice that of water and evaporates twice as fast as water. *Id.* at 80.D-D is composed of both DCP and TCP. When a D-D spill evaporates, the DCP evaporate more quickly than the TCP. *Id.* As the spill gets smaller, its vapor pressure decreases and becomes one eighth the water evaporation rate. *Id.* Initially, TCP is a minor constituent of D-D because it is not as volatile as DCP. *Id.* D-D had a higher composition of DCP than TCP because as a soil fumigant, it was designed to rapidly diffuse through soil to kill nematodes. *Id.* at 81.TCP was a minor constituent but as the spills evolved, TCP remained. This made TCP seem like a major constituent of D-D. *Id.*

69. D-D and DCP are very soluble in water. If there is regular water movement, DCP dissolves in water and is transported by water towards the water table.*Id.* at 75.DCP tends to readily dissolve unless there is a large spill. *Id.* at 77.DCP also has a high vapor pressure and a high Henry's law constant, which is a measure of the portion of a dissolved substance that will partition into the air. *Id.* at 78; Deeley, at 2765:10-2766:4. When DCP infiltrates the ground, it moves through the soil by molecular diffusion. Walton at 78. As a result of molecular diffusion, DCP moves in all directions, although gravity exerts a small influence on the process. *Id.* Some DCP moves with the water and some of it partitions from the aqueous phase into the "soil air," i.e. the pockets of air between the soil grains. *Id.* The

residual DCP that remains in the soil air may repartition back into the aqueous phase when additional water falls on the surface. *Id.* Because of molecular diffusion, DCP does not have a signature unless a large amount of non-aqueous phase liquid (NAPL) is deposited and remains on the surface, as might be the case at the sump. *Id.* at 79.

70. Focused infiltration occurs where there are flaws and cracks in an oiled ground surface, water puddles and the contaminant is transported by water down towards the groundwater. *Id.* at 77, 84, 88. Chemicals can infiltrate a crack because water flows through the crack by gravity. *Id.* at 88. When a contaminant such as DCP enters a crack or flaw, the contaminant moves in random directions through molecular diffusion. *Id.* at 89. Once DCP is below the ground, its evaporation process is slower because DCP can move towards the surface only by moving upwards though sand and soil grains, through molecular diffusion. *Id.* at 88. Once a spill has infiltrated beneath the surface, it is retained for a much longer period of time; another rain storm comes, it introduces more water and moves the contaminant further down underground. *Id.* The infiltration process occurs over a series of storm events, whereby rain water, during the course of weeks and months, pushes the contaminant deeper down in the subsurface. *Id.*

71. The Governments have not identified any specific areas on the Railroad parcel where focused infiltration has actually occurred. Although rain water did puddle in the swale on the southern end of the Railroad parcel, the sampling results do not reveal soil contamination beneath the swale. There are no other depressions on the Railroad parcel

where more water might have collected. Stephens at 3617:13-21, 3618:18-3620:23, 3651:9-3653:12.

72. Even if cracks or other flaws, which might serve as entry points for focused infiltration, are assumed to exist on the Railroad parcel, and even if it is assumed that small spills of pesticide products may have made their way into such cracks, those circumstances do not establish that chemicals of concern migrated 70 feet downward to the groundwater. (For example, most of the dinoseb detections were at 15-20 feet bgs. Woody at 491:9-10). A crack in the ground level surface provides a preferential pathway for evaporation out, as well as infiltration. Because the Railroad parcel was oiled, the temperature in a crack was higher than would otherwise be the case, facilitating such evaporation. There is no evidence of deep cracks, large spills or spills followed by heavy rainfall which might be sufficient to overcome those evaporative forces. Deeley at 2852:10-2853:11; Stephens at 3628:14-3631:23.

73. The Governments' alternate theory of groundwater contamination is that surface runoff of water containing dissolved chemicals may have migrated from the Railroad parcel to B & B's waste pond. A substantial dispute remains whether rainfall at Arvin is sufficient to generate the quantity of runoff that would have been necessary for such transport to occur. Chemical releases on the Railroad parcel have not been matched with significant rainfall events. Stephens at 3594:15-3597:13; Deeley at 2769:14-2773:12, 2781:6-18, 2857:2-2858:4 (describing physical processes necessary to cause a spill to be dissolved and transported with runoff).

K. *No Continuous Columns of Contamination under Railroad Parcel*

74. The levels of chemical contamination on and under B & B Parcel are substantially higher than any of the reported detections on and under the Railroad parcel; the overwhelming contaminant mass is on and under the B & B parcel. Kalinowski at 3489:15-19, 3496:15-22; Stephens at 3659:11-3660:12.

75. The vadose zone concentrations are most consistent with sources, which existed at the same location over long periods of time, and are inconsistent with soil contamination caused by occasional releases at scattered locations, as are alleged to have occurred on the Railroad parcel. Stephens at 3639:14-3641:3.

76. While many of the sample borings on the B & B parcel show contaminants present throughout the soil column, from near the surface to the groundwater, the Railroad parcel borings do not show continuous columns of contamination. This data gap raises question whether hazardous substances released on the Railroad parcel migrated down to the groundwater. Stephens at 3658:12-25, 3660:13-3661:1; Chirlin at 1680:16-1682:13, 1685:5-16.

77. The Governments contend that Ecology and Environment, Inc.'s (E & E) soil Boring O and Kennedy/Jenks Boring CA-20 represent continuous columns of contamination to groundwater under the Railroad parcel. The Railroads dispute the validity of this sampling data. Even assuming the data is valid, the contamination level is below the remediation threshold. No expert has testified it impacted the groundwater. Stephens at 3803:22-24(O); 3958:23-3960:5 (CA-20).

78. The size and shape of the groundwater plumes indicate the absence of identifiable sources of measurable hazardous release contributions from the Railroad parcel to the mass of chemicals present in the groundwater. Kalinowski at 3530:21-3531:4.

79. The combination of groundwater flow and mounding is sufficient to have carried contaminants of concern in the A-zone from B & B's sump to the groundwater under the Railroad parcel, and is the most likely explanation for the groundwater plume found there. Stephens at 3671:3-7, 3678:25-3679:8, 3700:15-3701:3. In particular, groundwater "mounding" caused by the high input of contaminated water from the B & B unlined waste pond and sump, and to a lesser extent from pooling of water outside the pond berm on the B & B parcel, coupled with the flow of irrigation tail waters from the fields to the east of the Site, caused a radial flow of water from those locations, biased in the direction of the downgradient slope of the water table to the southwest. This mounding had the effect of pushing the groundwater in a more westerly and northerly location than would otherwise be the case. Stephens at 3671:12-3679:8, 3981:18-3990:2; Exs. 97.3, 97.4, (pooling outside pond berm); Stephens Fig. 24-35 (water elevation maps); Ex. 1027 (irrigation).

80. Dr. Stephens' plume maps and E & E's plume maps (RI/FS Fig. 4.7, 4.8, 4.9) are substantially similar; none of them show concentration bulges under the Railroad parcel. Stephens at 3960:6-20.

81. It is undisputed that the pond, the sump, and the dinoseb spill area, all of which are located on the B & B parcel, were and are the primary sources of the groundwater contamination at the Site. ROD at page 7 states: "The distribution of contaminants was

consistent with the locations of the major source areas and follows a pattern consistent with the flow of contaminants in the A-zone." Ms. Wetmore confirmed that the statement was accurate at the time it was written, and is still accurate now. Wetmore at 2093:18-2094:5. *See* Walton at 18:8-19:17, 75:3-16 (waste pond is largest source of "focused infiltration" on the site); 115:22-116:6; Chirlin at 1791:20-24; Deeley, 2842:10-16 (sump and pond provided a "direct conduit" to the groundwater) Kalinowski at 3489:15-19, 3496:15-22 (over 99% of the dissolved and adsorbed chemical mass in the A-zone is in the area of the B & B sump and pond).

82. Whereas D-D and similar volatile organic chemicals will rapidly volatilize and "fume" when injected into the soil, or are spilled onto the ground, the pure phase D-D which was rinsed into the sump could not readily volatilize due to the pressure of the water overlying it.

83. Because dense non-aqueous phase liquids (DNAPLs) are by definition heavier than water, the pure phase D-D sank down into the groundwater. In contrast, with respect to the types and duration of releases which may have occurred on the Railroad parcel, "the soils underneath there never really had an opportunity to wet up, to create a head that would drive those constituents downward." Stephens at 3692:4-3694:14.

84. The relative concentrations of 1,2,3-TCP, 1,2-DCP and 1,3-DCP in the groundwater beneath the northwestern portion of the Railroad parcel support the Railroads' contention that those chemicals traveled from beneath the sump and pond in the groundwater, and did not directly result from releases of D-D on the Railroad parcel. This is because in the event

of a surface spill, the 1,3-DCP would evaporate and disappear very quickly, then the 1,2-DCP would evaporate, and then the 1,2,3-TCP-which comprised only about 5% of D-D. The reported presence of all three of those chemicals in the groundwater is evidence that they migrated there through a non-evaporative process, such as being underwater in a sump or pond. Smith at 2663:8-2672:3; Ex. 3019A.

85. The Kennedy/Jenks data for CA-20 (soil borings) are unreliable for the purpose of determining whether hazardous substances were released at that location. Smith at 2643:5-2652:5 (reported findings of 1,2-DCP and EDB in CA-20 are invalid because the GC was misinterpreted by the lab; the reported finding of 1,2,3-TCP at 37 ppb is a transcription error); Stephens at 2980:13-3982:11; 3985:22-3986:1.

L. *Sampling Results on Railroad Parcel*

86. The FASP testing lab was set up to provide quick turn-around of sampling data. Laboratory protocol was developed primarily to determine whether a chemical of concern was present and whether further investigation or remedial action was necessary, not to quantify the amount of each chemical that was present. Ex. 10W; Mandel at 271:1-14; 275:15-24; 382:9-22; 319:19-25.

87. Applicable OSWER guidelines distinguish between field data, which is generally not suitable for enforcement purposes, and enforcement data generated by labs approved under EPA's Contract Laboratory Program (CLP). Huetteman at 591:11-24 (acknowledging this distinction), but see 592:7-12 (opining that those particular rules were no longer used in the 1990s); Smith at 1078:13-14 (FASP data not intended as a replacement for CLP data).

88. The FASP laboratory protocol was not intended to and did not meet the reliability standards required of CLP labs. FASP Field Operations Work Plan (Ex. 1399), App. B p. 1-1; Mandel, 371:25-372:16; Ex. 10W (the FASP QA/QC plan "is not intended to be equivalent to a CLP plan"), discussed by Mandel at 377:8-378:17; Huetteman at 601:16-20, 602:10-603:6. Unlike a CLP lab, the FASP lab was never audited or certified by any independent party; it did not run "check standards"; it did not maintain the level of documentation of performance required of a CLP lab; and it did not double-check its standards for possible contamination. Yerian at 1169:1-1170:18; Smith at 2541:16-2542:10.

89. The FASP lab data was not intended to be used for enforcement purposes. Mandel at 375:10-15; Huetteman at 600:24-601:2; FASP QA/QC plan (TAT Report, [Ex. 1034], App. M, EPA 202500). At the time the FASP protocol was selected, the responsible EPA employees were not aware that the Railroads were PRPs, and they were not concerned about whether the data was suitable for enforcement purposes. Mandel at 266:10-267:21; Huetteman at 642:6-23, 645:5-11.

90. The analytical method used by the FASP lab at Arvin was unique to that project. It was not a standard EPA method which had been tested and verified over time, but was created by Dr. Yerian in the same week she was organizing the lab, the equipment, and the people she needed and making arrangements to move them down to Arvin from Seattle. Yerian at 1170:19-1171:14. The analytical method was originally designed to achieve a two-hour turnaround, but was modified to a one-day turnaround. Yerian at 1033:20-1036:25.

91. Dr. Yerian's objective was to provide analytical data in a timely manner to assist in the site assessment. Yerian at 1131:8-14. The focus of the assessment was to identify high concentration source areas, and to ensure that samples reported "non-detect" were accurate; the procedures were not designed to maximize confidence in the accuracy of low concentration hits. Yerian at 1216:3-16.

92. All of the sampling data reported by the FASP lab is identified by an "f" qualifier, indicating that different quality control and data validation procedures were applied to those samples. This means that analytes were to be assumed to be tentatively identified, and concentrations were to be treated as estimates. FASP Field Operations Work Plan (Ex. 1399), 1. *See* Yerian at 1132:12-19, 1077:24-1078:1 (FASP lab data was "always evaluated as estimated data"); Smith at 2596:14-2597:6. That "analytes are tentatively identified" means that the chemicals have been tentatively identified based on their retention time in the gas chromatograph, but they have not been confirmed by using a gas chromatograph (GC) with another column on it, or by a mass spectrometer (MS). Smith at 2596:14-2597:6.

93. The FASP lab analyzed the Arvin samples exclusively using a GC. The GC operated generally as follows: The chemist screwed a small vial containing a soil sample onto the GC; the volatile organic compounds ("VOC") were "purged" out of the samples by bubbling helium gas through the soil; the VOCs passed over and were absorbed onto a "trap;" the trap was heated; the compounds exited the trap and passed through a column; the chemicals adhered to the coating on the column to different degrees, and passed out or "eluted" from the column at different

rates; a detector detected the time at which a compound passed through it; and a computer hooked up to the detector printed out a chromatogram which depicted the elution times. Smith at 2500:2-17, 2504:3-2505:11; Yerian at 1139:10-18, 1044:4-1047:16. The amount of the particular material which had passed through the detector was determined by the area under each compound's chromatogram "peak." Smith at 2500:5-2502:22.

94. A GC does not identify the compounds being tested by their chemical composition, but rather reports the elution, or retention, times of the analytes. A mass spectrometer, in contrast, is able to identify unknown chemical compounds. Therefore, CLP protocol calls for either (1) a confirmation column to be run on another GC, or (2) a GC/MS to validate all positive results identified on the primary column of a GC. Smith at 2630:22-25. The FASP lab did not have a mass spectrometer at Arvin. Yerian at 1082:24-1083:12; *see* Huetteman at 594:3-20, 596:18-597:5 (lack of MS is the primary difference between the mobile FASP lab equipment and a CLP lab's equipment).

95. "Dual column confirmation" is a process by which samples to be confirmed are run through a second GC in which the elution times of the compounds have been reordered. Smith at 2505:1-2506:17, 2599:5-13 (a dual column is necessary in order to confirm which of a number of chlorinated or brominated compounds with similar retention times you have identified). The FASP lab had two GC's-a Shimadzu GC (the "low-GC") and a Varian GC (the "high-GC"), Yerian at 1062:15-17, 1133:5-17, 1138:7-8]-but the target analytes eluted in the same order because the FASP lab used the same column and the

same program. Smith at 2598:16-18. Thus, the FASP lab could not do dual column confirmation. Smith at 2598:19-2599:4. Dual column confirmation was used by Southwest Lab of Oklahoma for their analysis of the dinoseb samples from Arvin.

96. Comparison of the FASP data to the outside lab results for the 10% of FASP samples that were sent off-site for confirmation reveals significant differences between the field and the permanent lab results, especially as to the low levels of 1,2,3-TCP. According to a comparison made by EPA's Dr. Yerian and Bob Mandel, 25% of the time the FASP lab did not identify the same target analyte as the confirmation lab, and only 46% of the time did the labs agree with regard to non-detect findings. Ex. Y-45; Yerian at 1173:16-1174:11, 1245:18-1246:9.

97. The samples analyzed at the FASP lab could have become contaminated in at least two ways: from airborne contaminants released during the TAT team's drilling operations, and from sample handling.

a) *Drilling operations.*The GCs were set up next to each other in the Region X mobile lab, which was located in the warehouse on the B & B parcel. Yerian at 1137:25-1138:8, 1167:21-24. Injections into the GCs began on February 27, 1990, when drilling activities were still going on. Yerian at 1137:20-24; App. A to RI (Ex. 1464B), A-1 (borings were completed between 2/27/90 and 4/16/90). The drilling surrounding the warehouse liberated volatile organic compounds and created airborne contamination. Memo. and Order of 3/19/99, undisputed factual finding 32 ("Many of the hazardous substances present at the site had a tendency to volatilize when disturbed by drilling activity"); Mandel at 366:14-368:4; 369:19-370:6. Air was vented out of the lab to

protect those working in it from contamination and drawn back in from outside, but there is no evidence that the FASP lab had an air filtration system. Woody at 467:14-468:12; Yerian at 1207:18-1208: 4-23.

b) *Sample manipulation.* The FASP lab was working with unusually small (half gram) soil samples. Yerian at 1114:24-1116:11. Collection of soil samples in the hot zone while wearing Level B protection was a difficult process, and a likely source of soil particles getting stuck under the rims of the vials. Smith at 2463:5-2463:19, 2457:7-13; Woody at 457:25-460:13. Also, one of the FASP lab chemists noted in the logbook on March 4, 1990 that some of the vials "would not seal due to deformities on the rims" Yerian at 1199:7-12, Ex. 3-Y, and on March 2 that, "slight imperfections in the vial rims cause leakage of VOCs . . ." Smith at 2569:23-2570:2. Because changes in temperature cause the air within sample vials to expand and contract, soil particles under vial rims or deformed rims can permit VOCs to enter and exit the vials. Smith at 2461:8-2463:4, 2547:25-2548:6; Yerian at 1199:13-1200:9 (without a good seal, vials can leak and contaminate other samples). TCP released from a vial could diffuse through the plastic bags in which the vials were kept, and contaminate the air in the lab. Smith at 2550:13-2551:10. As Dr. Smith summarized it, "so little in the atmosphere can give you trouble just by screwing [the cap] off. Parts per billion is not easy to do, and under FASP lab conditions, I'm sure it is difficult to do." Smith at 2538:22-2539:1. Overall, reliability of FASP sampling data is subject to some question, approaching a range of plus-minus forty percent for some samples.

M. *The Amount of Contaminants that Entered the Sump Cannot be Estimated.*

98. B & B washed out bobtails and nurse tanks at an unlined sump on the B & B parcel from the early 1960s until the sump was lined in 1979. Merryman at 69. If a truck had to change over to a different fertilizer or chemical, the truck would be weighed, pumped clean and washed out at the wash rack. *Id.* at 69-70.B & B employees attempted to pump out all the residual material before rinsing, but bobtails probably had between 5 and 10 gallons remaining. *Id.* at 71.

99. Before rinsing the tank, however, the employee would open a valve to let the material drain onto a concrete pad. *Id.* at 70-71.This would cause some D-D to diffuse into the atmosphere before the rinse water followed, washing the material into the sump. *See* Walton at 88.

100. If the driver was not able to place the bobtail on top of the wash pad, the material would drain off the other way into the yard. Merryman at 71. During the busy D-D season when tankers continually hauled load after load of D-D, the tanks were not washed, but were sent back out to the fields. *Id.* at 69.Nonetheless, residual D-D would be washed out of these tanks at least once a day at the end of every day and sometimes more often each day. *Id.* at 72.

101. The sump, however, did not percolate well because it became clogged with sand fines. Walton at 4056; Merryman at 50, 55. The water in the sump and the contaminants also evaporated. Walton at 4053-57. Therefore, the exact amount of contamination that entered the subsurface at the sump cannot be calculated.

N. *The Contamination from Each Parcel Cannot be Exactly Quantified*

102. There is no basis to determine the source of groundwater contamination in the concentrated area near the southern part of the Railroad parcel. Chirlin at 1582. There is more certainty in the northern portion of the Railroad parcel, because there is no alternative explanation except releases on the Railroad parcel. *Id.* The contaminated groundwater under the southern portion of the Railroad parcel could have come from a source like the D-D tank or from releases on the Railroad parcel. *Id.*

103. It is not within the realm of science to quantify the contribution from the Railroad parcel over the ground surface or through focused infiltration that has reached groundwater under the Site. Walton at 4078.

104. The Governments contend the two feasible sources of contaminants from the Railroad parcel are surface water that reached the southeast sump on the B & B parcel and groundwater infiltration. The scientific evidence is inconclusive, however, the presence of agricultural chemical spills on the Railroad parcel contributed to the need to incur study costs.

O. *Listing of Site on National Priorities List (NPL)*

105. On October 4, 1989, EPA listed the 4.7 acre "Brown & Bryant, Inc. (Arvin Plant)" real property on the NPL. *See* 54 Fed.Reg. 41015, 41025 (October 4, 1989). The 0.9 acre Railroad parcel and the 3.8 acres B & B parcel were listed on the NPL as one facility. The Federal Register notice for the listing stated that the public docket available at EPA's regional headquarters in San Francisco contained documents relating to the evaluation and scoring of the Arvin

Plant "in this final rule." *Id.* at 41,016. These documents, including a map depicting the Site, show that the entire area inside the fence line, as it existed in 1989, was listed as one facility. *See, e.g.,* Ex. G-3, Ref. # 23.

106. The Railroads had actual knowledge that their parcel was listed as part of the Arvin NPL facility, but did not appeal EPA's rule-making to the United States Court of Appeals for the District of Columbia Circuit within 90 days of the listing. Ex. G-1. This forecloses the Railroads' ability to object to EPA's designation of the Site as a single facility.

107. Federal Regulations state that "If a party contests liability for releases on discrete parcels of property, it may do so if and when the Agency brings an action against that party to recover costs or to compel a response action at that property." 54 Fed. Reg. 41000, October 4, 1989.

P. *Bulk Storage of D-D managed by B & B*

108. B & B chose to store Shell D-D in a bulk storage tank at the Arvin plant. Patrick Reeves Deposition ("Reeves Dep.") at 103.

109. D-D is a corrosive solvent that corrodes through metal, and also attacks any kind of rubber, or seals. Brown at 758. D-D is a chlorinated compound that when exposed to water vapor in air, forms hydrochloric acid at the level of the liquid inside the storage tank. *Id.* at 759; Ex. 1125, at S003171 ("D-D soil fumigant is moderately corrosive. Moisture coming into the tank during in-breathing through the vent contributes to this corrosion. Use of a tank vent desiccant type drier or a low pressure inert gas blanket system will greatly reduce the amount of moisture present.").

110. Shell's customers' bulk storage of D-D among distributors west of the Rocky Mountains facilitated sales to large users of D-D in the agricultural valleys west of the Rocky Mountains. Haverland at 2289; Robert Swain Deposition ("Swain Dep.") at 25-27. Shell's marketing policy in the 1960s and 1970s encouraged bulk sales, requiring distributors to have bulk storage facilities for D-D.

111. Seventy-one bulk D-D storage facilities in the Western United States carried Shell products. *See* Ex. 1031.

112. B & B's annual marketing agreements with Shell stated: "Shell's objective in making this agreement with you is to maximize penetration of Shell's pesticides in the area of your primary marketing responsibility." *See* Ex. 1070; Brown at 755, 763-64. The marketing agreement required B & B to "[m]aintain adequate inventories of Shell pesticides in order to provide prompt shipments to customers throughout your primary area of responsibility." *See* Ex. 1070. B & B wanted to continue as a Shell distributor. To maintain adequate inventories of D-D pursuant to this arrangement, B & B had to buy a bulk tank, keep it in good order, and store D-D in adequate amounts to supply to farmers. *Brown* at 765.

113. In the 1950s or 1960s, Shell sold D-D to Central Valley distributors mostly in barrels, as opposed to bulk liquid sales delivered to a plant storage tank. *Id.* at 757-58.

114. In the early 1960s, the transition to bulk storage presented problems with corrosion, rust, and leaking. *Id.* at 758.D-D bulk storage prescribed by Shell in its marketing programs was intended to and did economically benefit Shell.

115. The bulk storage of corrosive D-D in the 1960s that Shell facilitated, caused numerous tank failures and spills. Mr. Brown remembered, in particular, opening up one bulk D-D tank and seeing a foot of rust in the bottom. The tank was only a couple of years old. *Id.* at 759-60.D-D ate through mild steel. One could not predict when a tank would fail. *Id.* at 760.Corrosion of tanks, in areas of welds, often resulted in a sudden and unexpected failure of a D-D tank and large scale leakage of D-D. *Id.*

116. The corrosive effects of D-D caused B & B to replace the tanks on a regular basis. *Id.* A D-D tank would last only four to six years. *Id.* If it did not fail catastrophically, it would begin to "weep" at the top of the tank like frosting on a glass with ice. *Id.*

117. Similarly, the corrosive D-D caused rubber seals on pumps and valves to fail, suddenly and unexpectedly, causing big leaks. *Id.* at 760.

118. Ultimately teflon seals and special chemical hoses that cost three and four dollars a foot became available to handle D-D. *Id.* at 758.Nevertheless, in the late 1960s, teflon was fairly new and the price was prohibitive. *Id.* at 759.Stainless steel was the appropriate metal to use to store D-D in bulk, but it was also very expensive at that point in time and stainless steel was seldom used by distributors. *Id.* As time went by, however, the difference in price between stainless steel and mild steel narrowed and it became affordable. *Id.*

119. Shell provided B & B with technical information about Shell agricultural chemical products and information regarding safe storage and handling practices. *See, e.g.,* Exs. 1102, 1103, 1109, 1119-1126. The information was suggested for B & B's benefit.

120. In about 1979, Shell instituted a marketing program called the "Bulk Facilities Improvement Allowance." Haverland, 2246:19-2247:9. The program provided rebates of 10 cents per gallon for improvements by D-D distributors in their bulk handling and safety facilities. Exs. 1078, 1079; Haverland, 2182:10-2183:5, 2246:19-2248:2, 2303:11-14. The program was voluntary and the distributor owned the improvements used in safety programs or the storage facilities. B & B was responsible for deciding which improvements would be made and how they would be made. There was no requirement that the reimbursed improvements be dedicated to D-D use. Rea Dep., 95:21-96:3.

121. In 1979, Shell learned that in certain areas independent distributors were not complying with applicable environmental laws and regulations. Haverland, 2274:12-15. In 1981, Shell revised its improvement program to include a qualification that each distributor retain an engineer to review and inspect the distributors' facilities to ensure compliance with all applicable laws and regulations, and then certify that improvements recommended by the engineer were made. *Id.* 2277-81.

122. Shell reserved the right to refuse to sell bulk D-D to any distributor who failed to obtain an inspection by a qualified engineer and provide self-certification of compliance with the applicable laws and regulations. *See* Ex. 1086; Haverland at 2284-85.

123. B & B submitted certifications for both the Arvin and Shafter facilities on or about December 29, 1981. *See* Ex. 1150.

124. The revised Shell program included an up-front financing option of which B & B did not take advantage. Exs. 1084 and 1086; Haverland at 2283.

125. B & B and Shell signed a Bulk Facilities Inspection/Improvement and Maintenance Agreement on March 7, 1984. *See* Ex. 1060.

126. B & B could have used any qualified engineer, including an in-house engineer to perform the inspection. Upon the recommendation of Shell, Boyle Engineering conducted the investigation as part of the improvement program. *See* Ex. 1028.

127. The only way Shell could encourage B & B to comply with applicable environmental laws and regulations was through Shell's ability to stop selling B & B its products. This did not become an issue until Shell established its revised program. Prior to that, the improvement program only included the 10 cent per gallon allowance. Haverland at 2247:3-9, 2253:3-7.

128. The improvement program applied to bulk products. D-D was the only bulk product B & B purchased from Shell.

129. A product similar to D-D, Vidden-D, was available from Dow. B & B sold Vidden-D from its Shafter site, not at Arvin. Brown at 958-960.

130. The only time a Shell representative, Engineer Robert Swain, inspected the Arvin Site was July 1979. The purpose of this inspection was to confirm whether B & B's bulk facilities complied with applicable laws and regulations as summarized in Shell's D-D Handling and Safety manual. Exs. 1127, 1088, Swain Dep. at 66; Brown at 783-785.

131. There was no requirement that B & B submit to the inspection as part of the Bulk Facilities Improvement program. *Id.*

132. After the inspection, Mr. Swain's findings were communicated to Jack Brown at a meeting. Brown at 785:5-787:15. Swain's notes were then typed (Exhibit 1030) and a memorandum submitted to B & B. Ex. 1127A; Haverland, 2265, 2272, 2274.

133. As a result of the July 1979 inspection, Shell made a number of recommendations, which ranged from proposing three alternative solutions to address emergency pressure relief for the D-D storage tank to suggesting alternative solutions to address the engineer's conclusion that "breather vents" were too small. Ex. 1127.

134. As part of the Shell inspection requirement Patrick Reeves of Boyle Engineering inspected the site on September 10, 1981. Ex. 1028. The inspection covered the same equipment as Mr. Swain's inspection. There is no evidence Mr. Reeves wrote findings and recommendations. Compare Ex. 1028 with Ex. 1030.

135. Mr. Reeves testified that he was "absolutely not" managing B & B's operations. Reeves Dep. at 88.

136. On December 29, 1981, B & B certified to Shell that the Arvin facility had been inspected by a qualified engineer and improvements had been made at a cost of $38,500. B & B was reimbursed $13,946.70 by Shell based on 1981 Shell product purchases for both Arvin and Shafter of 139,467 gallons. Exs. 1150 and 1092.

137. There is no evidence B & B took any specific action in response to inspector recommendations-other than putting a dike enclosure around the D-D tank installed in 1981.

138. Mr. Swain's inspection summary did not recommend replacing the tank. Ex. 1030.

139. The D-D label advises users to rinse equipment and dispose of wastes (including spills and rinsates) away from domestic water supplies. Ex. 1103.

140. Prior to 1983, B & B never investigated to determine whether its sump and pond might endanger a domestic water supply. Brown at 966-67.

Q. *Spills and Leaks Were Inherent in D-D Tanker Deliveries.*

141. Bulk storage of D-D at the Arvin plant was by common carriers to the Shell-dedicated bulk D-D tank. *Brown* at 792.

142. Shell arranged for the delivery of Shell D-D to the bulk tank at Arvin by tanker trucks. *Id.* at 792, 1021; Merryman at 62. It is undisputed that spills were inherent in the delivery process that Shell arranged, and always occurred in differing degrees of magnitude.

143. Mr. Merryman testified that when the tanker trucks downloaded D-D into the D-D tank, buckets were placed underneath the hose connections. *Id.* at 35. After unloading and unhooking the hose, the delivery men would drain their hoses into a bucket and the contents would be dumped back into a storage tank. *Id.* at 36.Mr. Merryman saw D-D spill onto the ground in this process. *Id.* at 62. Mr. Merryman described D-D spills onto the ground as a common event. *Id.* at 35-36.

144. Mr. Merryman also saw material come out of the couplings of the D-D rigs delivering to the bulk tank and saw D-D spill on the ground. *Id.* at 62-63.Spills varied from a few cupfuls to enough to fill a 5-gallon bucket. *Id.* at 63.

145. Mr. Brown also testified that the trucker would hook up the tank on the truck to the bulk tank with a two-inch or maybe a three-inch hose, turn on a pump and pump the D-D into the bulk tank. *Id.* at 792. If the trucker supplied his own pump, after he shut off the pump, the hose would have residual D-D in five to ten feet of hose. *Id.* at 793.Mr. Brown testified that the drivers normally used a bucket to pour the residual D-D in the hose into the bucket and then pour it back into the truck, or sometimes into a tank B & B had for such "dregs." *Id.* at 792-93.

146. Mr. Brown testified that the procedure of draining the hose back into the bucket often resulted in spills. *Id.* at 983.He commonly saw spills when drivers "walked the bucket." *Id.* at 983. Spills occurred almost every time of delivery. *Id.* at 794.

147. Gary J. Leary, a trucker, also testified about spills during deliveries. In 1974 or 1975, Mr. Leary worked for Mitchell West Trucking hauling farm chemicals, and he made deliveries to B & B at Arvin. *Id.* at 1834. He delivered fertilizers on behalf of various manufacturers. *Id.* at 1835.Mr. Leary was familiar with the types of trucks used in the ag-chemical industry and saw tanker trucks filling up the D-D tank at Arvin several times. *Id.* at 1838.The equipment was similar or exactly like what he used and the procedure was exactly the same. *Id.* at 1847-48.

148. Mr. Leary explained that the delivery trucks had pumps mounted on them, operated by a PTO or power take-off unit. *Id.* at 1840.The pump was plumbed into the tank to enable connection of a detachable hose to the truck pump and to the receiving tank. *Id.* The receiving tank normally had a threaded fitting to receive the hose connection. *Id.*

This fitting had a gasket, or a rubber ring or seal located inside the fitting to stop leaks. *Id.* at 1842. Normally the trucking company owned the hose. *Id.* at 1840-41.

149. After the hose was connected at both ends, the driver turned on the pump and opened the valve that controlled the material coming out of the tank truck and allowed it to flow to the pump and be pumped off. *Id.* at 1842.Commonly, leaks occurred through the gaskets and at the packing in the pumps themselves. Every load would have a drip or two. *Id.* at 1842.

150. Mr. Leary testified that he placed a bucket under each one of the fittings to catch the drips. *Id.* at 1843.When he finished the unloading process, he would disconnect the hoses and there was always a little residual material left in the hose that he would drain back into the bucket. *Id.* at 1843.

151. Normally a driver would disconnect at the truck head and lay the flexible hose down on the ground, with the end of the hose hanging over the edge of the bucket. *Id.* at 1843-44. Then he would lift the hose at the far end and allow the material to drain down towards the bucket. *Id.* In this process, as he came closer to the bucket, the bucket sometimes became unstable and would tip over, spilling the contents. *Id.* at 1844.Otherwise, from time to time there could be excessive material in the hose and it would overflow the bucket. *Id.* at 1844.In addition, the hose would commonly be tossed on the ground after the process of draining to the bucket and residual spills would occur from the hose. *Id.* at 1844-45.The trucks had hose tubes on them, and feeding the hose into the hose tube would cause residue to

drip out of the hose on to the ground from time to time. *Id.* at 1845.

152. When the receiving tank had a powerful pump, the methodology was different. *Id.* at 1844. For example, B & B's big UN-32 tank had a large, powerful pump on it. *Id.* Mr. Leary testified that he liked to unload there because it would unload much quicker than with his truck pump. *Id.* In that situation, there was less likelihood of a spill because he could break the line at the truck, close the valves, break the fitting loose and that would allow a little air to come in the hose and suck residual product out of the hose and into the receiving tank. *Id.* Even with a powerful pump on the receiving tank, however, a bucket was still necessary and used because nine times out of ten, the gaskets would leak. *Id.* at 1873. Even for hauling fertilizer, Mr. Leary carried extra gaskets due to constant gasket failure. *Id.* at 1874. Mr. Brown testified that even with a pump at the tank, spillage of at least a half a quart would occur. *Id.* at 984.

R. *Shell's Awareness of Delivery Procedures*

153. Shell took similar D-D deliveries at its own Central Valley agricultural chemicals operation, Western Farm Services' facilities. Leary at 1851-52; Brown at 926-28.

154. Mr. Haverland testified that the various names given a "sales allowance" were simply euphemisms for a discount to protect the list price of a product, and that whatever the name of the allowance, whether "evaporation allowance, promotional allowance, or competition allowance," the purpose was to give a price discount to meet competition. Haverland at 2230. However characterized, there was a mone-

tary allowance to B & B for product Shell expected to be lost in the process of delivery and storage.

155. Exhibit 1123, which is Shell's "Outline of General Guidelines for D-D Soil Fumigant Bulk Installations," recognizes the practice of "walking the bucket" at Bates No. S003568. It states: Commercial carriers usually delivered through a three-inch camlock female fitting. If the pump had sufficient capacity, it could be used to off-load the carrier and, in so doing, the carrier's hose will be drained. If the carrier's pump is used, the hose between the pump and the truck tank will remain full and must be drained back into the truck or other suitable container.

156. Mr. Swain, a former Shell employee who drafted Shell's D-D tank inspection checklist in 1978, admitted that the delivery of D-D to the bulk storage tanks resulted in spills of D-D. Swain Dep., at 132-35. He testified that it was a common practice in Shell's understanding for distributors to use a five gallon bucket or pails to catch leaks from the tanker truck. Swain Dep. at 132-35. In addition, drips and spills occurred from the hose after disconnection. Swain Dep. at 132-35.

157. Spills of D-D from hoses and couplings during the D-D delivery process on the B & B parcel was a common occurrence. Despite the use of buckets to catch spills, a few cupfuls to 5 gallons of D-D would frequently spill on the ground. Some spillage of D-D was unavoidable. Merryman at 35:16-36:1; 62:10-18; 63:1-10; Brown at 794:5-8, 795:14-18; 984:14-24; Leary at 1840:1-1841:1, 1842:15-1844:9, 1946:3-19, 1973:18-24, 1976:17-1877:6.

158. Shell's handling instructions were not limited to the delivery of the D-D, but also included spillage.

E.g., Rea Dep. at 209:13-210:13 ("dry disconnects" required to minimize spillage from hoses during loading and removal of D-D); D-D Manual, Ex. 1119, Bates No. S003251, S003255, S003263, (decontaminate areas where spillage has occurred and rinse out containers with water, keep out of waterways); S003256, S003263A (disposal of rinsates); S003269 (wastewater from washing down of spills should be absorbed or drained to a sump); D-D Safety Guide, 9/76, Ex. 1122, Bates No. S003561 (collection of rinsates from washing empty containers); Outline of General Guidelines for D-D Soil Fumigant Bulk Installations, Dec. 1981, Ex. 1123, Bates No. S003566 (Spill containment required includes lined remote containment area).

159. D-D leakage and spills were an inevitable and expected part of the delivery process.

S. *Shell Owned the D-D at Time of the Delivery Arrangement.*

160. It is undisputed that Shell manufactured the D-D in Louisiana and Texas and stored it at a GATX terminal in San Pedro, California prior to shipment to B & B. Haverland at 2201. The terms of the D-D sale for B & B were F.O.B. the customer's facility. *Id.* at 2208. Shell arranged for D-D delivery through common carriers, i.e., tank trucks. According to Mr. Haverland, F.O.B. destination did not mean that B & B had title to the D-D simply because a delivery truck entered the facility, but that B & B had stewardship. *Id.* at 2209.The Shell documentation arranging for delivery, however, referenced the fact that the drivers of the tanker trucks had to have certain equipment for transferring the D-D into the storage tank, evidencing direction and control by Shell. Transferring the D-D to the bulk storage tank

was the purpose of the distributorship/marketing agreements between the parties and each individual sale. Shell still controlled the process of deliveries, regardless of what the documentation said about F.O.B. destination. The intent of the contract was that "stewardship" of the D-D delivered to B & B once the common carrier entered the site. Haverland at 2208-09.

161. As of the time that Shell arranged for a common carrier to make the delivery, the D-D was under Shell's ownership and possession in San Pedro, at the GATX terminal.

T. *Around 1978 Regulatory Officials Began to Scrutinize Agricultural Chemicals.*

162. In 1978, the State of California discovered that workers at Occidental Chemical's DBCP plant in Lathrop, California had become sterile. Mandel at 261-62. A large release of DBCP to groundwater had occurred at the Occidental plant. *Id.* at 262.

163. On October 29, 1979, EPA issued a suspension order for Shell Nemagon, which contained DBCP. Ex. 1077.

164. In 1978, the Regional Water Quality Board inspected B & B's Arvin facility and requested that B & B line the drainage pond and the wash sump to prevent contamination of groundwater. Ex. G-71; Brown at 775-76, 780. B & B was found to have discharged wastewater containing pesticides into the underlying groundwater and ordered to complete a report of waste discharge and a correction plan.

165. Exhibit 1119, is a Shell manual for D-D soil fumigant, for handling and safety. *Id.* at 780.The second page of this exhibit is a letter, dated August 4,

1978, which states: "Gentlemen: Handling and storage of pesticides have always called for the utmost in care and consideration. The enactment of numerous laws and regulations, not only from the EPA, but also from OSHA, DOT and state and local governments, has made this task increasingly complex for all of us. We have always been concerned that our products are used only in accordance with proper instructions and regulations. The attached D-D Soil Fumigant Handling and Safety Manual is our best effort to tie many of these regulations and safety considerations together and give you our interpretation of what they mean. Of course, you will always want to review these regulations and make your own interpretations of such matters." The bottom of the page states: "We feel that the safe handling of our products is a responsibility of good citizenship and can go a long way in preventing criticism from the opponents of agricultural chemical tools." *Id.* at 782.

U. *The Purpose of the Manual Was to Promote Environmental Compliance.*

166. The 1978 Shell manual addressed the issue of environmental protection. Reeves Dep. at 103-04, 108.

167. Shell was well aware that liquid D-D is flammable, highly corrosive and toxic. Reeves Dep. at 60, 63.

168. Shell understood that spillage of D-D onto the ground posed a substantial threat of groundwater contamination. *Swain Dep.* at 129. Shell knew that if there were a sizable spill, the D-D could "percolate into the ground." *Id.* at 129.According to a Shell employee, Shell was definitely concerned about the D-D getting into the groundwater; it was a "no-no." *Id.* at 157.

169. Shell did not explain the environmental hazards of D-D bulk storage to B & B beyond what the product labels stated. *Id.* at 783;*Brown* at 768, 775.The Shell label, which B & B had to follow, advised that D-D should be kept "away from water supplies." *Id.* at 766, 768, 855; Ex. 1070. No technical advice or explanation of the mobility of D-D was provided for what "away from" meant. *Id.* at 768, 770.

170. Shell advised that D-D tanks should be kept on firm foundation, that D-D spills should be excavated and surfaces washed with water. Ex. 1102, Bates No. S003172 ("The tanks must be set on a firm foundation."); Ex. 1121 ("Spread a generous amount of an absorbent on the spilled D-D, such as diatomaceous earth, clay, soil, sawdust, et cetera. Collect the spent absorbent in a disposal drum. Repeat as needed to collect all liquid . . . If the spill is on the ground, dig up enough of the surface to eliminate the contamination, placing it in a disposal drum. . . . Wash equipment and surfaces with a detergent solution and rinse with water. Collect the washings with absorbent, as above.").

V. *The Shell Manual Made Recommendations as to Aspects of the Operation of Tanks.*

171. The 1978 Shell manual considered itself the company's "best effort to time many . . . regulations . . . together." Companies were free to "make [their] own interpretations." Reeve Dep. Page 21 addressed how the Shell bulk storage tank was to be constructed and operated. Reeves Dep. at 21-22.

172. The Shell manual, which B & B was required to follow, detailed all the protective equipment employees had to wear to load and unload D-D, and specified the types of metals that were best for

withstanding the corrosive qualities of D-D. Reeves Dep. at 52, 53, 58-59, 66, 70.

173. The manual stated that unloading operations from a delivery truck to a bulk storage tank should take place over an impervious surface with a containment area because of potential leakage. See Reeves Dep. at 67-68, 71. The Shell manual's purpose was to prevent a situation where the hose would lay around and someone would "pick it up later and, you know, how it will dribble out on the ground." Reeves Dep. at 62-63. There is no evidence that B & B ever had an impervious surface while it was receiving and storing D-D.

174. Shell's manual recommended that tanks have closed air circulation systems to minimize corrosion from air intake and consequent leakage down the sides of the tank, which was common. Swain Dep. at 172.

175. Shell recommended "quick connect" hose couplings be used and that suction pumps be located at the storage tank. Reeves Dep. at 52, 62-63, 65; Ex. 1414.

176. The manual stated that the tanks themselves should rest on an impervious surface and that a containment dike be placed around the bulk tank, "so that if it leaked it wasn't going to get into the underground." Reeves Dep. at 55. A gravel or rock foundation was not appropriate. *Id.* The dike was to contain a catastrophic spill. *Id.* at 17, 53-54, 73.

177. Shell's manual also stated that run-off from the facility should be controlled so that streams would not be contaminated. *See* Ex 1032; Swain Dep. at 110, 128, 134. This was especially true if a facility

did not have secondary containment. Swain Dep. at 110, 128, 134.

178. Shell's manual was comprehensive and had many other recommended details on how to operate a storage tank. *See* Ex. 1032.

179. Shell recognized that most of the Bulk D-D Facilities were bare-bones operations that often cut corners and did not comply with safety and environmental requirements. Swain Dep. at 106, 118, 136.

180. This was true, even of the Shell-owned facilities, such as Western Farm Services, which had to operate as profit centers. *Id.* at 136.

181. In 1978 or 1979, Shell implemented the requirements of its manual. *Id.* at 59, 63, 68. Shell developed a checklist of the manual requirements and organized an extensive inspection program to make sure D-D tanks were being operated according to the Shell manual's dictates. Reeves Dep. at 18, 21-22.

182. A Shell memorandum describes the purpose of inspections: "These inspections are in the form of a technical audit in which the customer's facilities are inspected and then reviewed with him for compliance with the Shell D-D soil fumigant handling and safety manual." Swain Dep. at 100; Ex. 1088.

183. A local Shell marketing contact, who was already fully familiar with the bulk D-D facility and the requirements of the manual, always accompanied the inspector. Swain Dep. at 160-61; *Reeves Dep.* at 17-18, 27, 39, 40-41, 105. Sometimes the inspector was a Shell employee and sometimes the inspector was an independent engineer hired by Shell to perform the inspection. When an independent engi-

neer was used, however, the distributor had to pay the fees. Reeves Dep. at 24-25.

184. If the inspector found that a facility was not in compliance with the manual, the distributor would be "written up." Reeves Dep. at 18.

W. *Few Bulk Facilities Were in Compliance.*

185. A report on the first wave of inspections that included the B & B Arvin plant and some of Shell's Western Farm Services plants stated: "This series of inspections found that not one of the customers visited had a totally satisfactory spill containment system." Swain Dep. at 104.

X. *B & B Is Insolvent*

186. Mr. Brown testified that eventually the insurance companies denied coverage for environmental pollution at the Site and cut off all funds to B & B. B & B's bank stopped financing B-B's business and B & B was essentially broke. *Id.* at 832-33. He closed the company and transferred most B & B employees to another company in December 1988. *Id.* at 833.B & B is now insolvent. *Id.*

Y. *B & B Was a "Sloppy" Operator*

187. The evidence establishes by more than a preponderance that throughout its operations, B & B personnel spilled chemicals, allowed chemical leakage, and rinsed down equipment, causing hazardous agricultural chemicals to be released to the environment, which directly caused the present need for CERCLA remediation. In the first twenty years of its operations, B & B took almost no precaution to prevent the release of hazardous agricultural chemicals into the environment.

Z. *EPA Incurred Costs in Response to a Release or Threatened Release of a Hazardous Substance from the B & B Arvin Plant.*

188. In 1989, the federal Agency for Toxic Substances and Disease Registry ("ATSDR") conducted a preliminary health assessment of the B & B facility and concluded that the site was a potential health concern. Ex. 1446A, RI at 1-7. ATSDR recommended further site characterization. The ATSDR health assessment is required for all NPL sites within one year of listing. 42 U.S.C. § 9604(i)(6)(A). EPA's SCORES summary shows that EPA reimbursed ATSDR $31,239.55 for the preliminary health assessment. Ex. G-10, Section 1, at 1.

189. In the summer of 1989, Robert Mandel was assigned to be the EPA on-scene coordinator at the B & B Arvin Site. He visited the Site in the summer of 1989 for a preliminary investigation and learned about the past history from State officials and private consultants hired by B & B. *Id.* at 261-62.He decided that the EPA needed more information to determine if the site posed an immediate threat. *Id.* at 262.

190. Mr. Mandel has prior experience with pesticides. *Id.* at 262.In 1978 and 1979, he was assigned to the State of California as a deputy registrar for the Structural Pesticide Control Board of the Department of Consumer Affairs. *Id.* at 260.He worked on the DBCP problem at Occidental Chemical's facility in Lathrop, California where numerous workers had become sterile through exposure to DBCP. *Id.* at 262.Mr. Mandel discovered the Occidental plant released a large amount of DBCP into the groundwater. *Id.* at 262. One surprising conclusion from Mr. Mandel's investigation of DBCP at the Occidental site was how mobile it was in the subsurface. *Id.* at

262. Even though it appeared to be relatively insoluble in water, DBCP was migrating downgradient very quickly. In addition, due to its toxicity, very small quantities of DBCP, in the low parts per billion, could ruin drinking water supplies. *Id.* at 262. Mr. Mandel concluded that even a small release of DBCP could have extreme, adverse consequences to groundwater. *Id.* at 262-63.

191. Mr. Mandel was aware that in the mid 1980s, there was a widespread problem in the San Joaquin Valley with DBCP turning up in drinking water wells in Fresno and Merced Counties. *Id.* at 263. This resulted in the closure of many wells, because the treatment technology to clean up DBCP contaminated groundwater to make it safe to drink, was considered impractical or just too expensive. *Id.* at 263.

192. As part of his initial assessment, Mr. Mandel became aware that DBCP and other similar compounds had been used by B & B at the Site. *Id.* at 263.Out of the dozens of compounds known to be at B & B Site, Mr. Mandel focused on what he thought were the most dangerous and the ones most likely to be migrating off-site: DBCP, EDP, dichloropropane and trichloropropane, as well as the herbicide, dinoseb. *Id.* at 263.

193. Mr. Mandel relied on EPA's Environmental Response Team (ERT) based in Edison, New Jersey for initial technical advice. *Id.* at 332-33.The ERT is an EPA organization that provides technical and engineering advice and analytical support to the Superfund program. *Id.* at 333.ERT helps regional EPA personnel develop solutions to difficult environmental issues. *Id.* at 333.Through Mr. Mandel, ERT became involved at the B & B Site in the summer

of 1989. *Id.* ERT helped Mr. Mandel establish a sampling grid on-site and collected surface or very shallow depth samples. *Id.* at 264, 333. ERT's contractor, Roy F. Weston, had a REAC contract. *Id.* at 333-34.

194. EPA also relied on Ecology and Environment, Inc. ("E & E"), an EPA contractor with a Technical Assistance Team ("TAT") contract. Personnel from Roy F. Weston also provided assistance under an EPA TAT contract. *Id.* at 320-21.

195. Through conversations with state officials familiar with the Site, Mr. Mandel learned that Arvin municipal drinking water well No. 1 was located approximately 1,700 feet downgradient of the site. *Id.* at 265.

196. Don Woody was a Senior Geologist at E & E, who headed up the TAT team for the B & B project. Woody at 390. Don Woody investigated the Arvin well and concluded that it was constructed so that contaminated water located more than 50 feet below ground surface could infiltrate and cause contamination of the drinking water. *Id.* at 265, 400-02.

197. After Mr. Mandel's initial review of the Site, he concluded that the Site was potentially contaminated with mobile volatile pesticides, but did not know whether there was a release occurring outside the fenced boundary of the plant. *Id.* at 265-66.Mr. Mandel decided to perform a Site Assessment to determine if the B & B facility was an immediate threat to human health or the environment. *Id.* at 316-17.He was trying to confirm whether pesticides that were released at the facility were actively migrating offsite, posing a threat to human health and the environment, in particular, the Arvin city well. *Id.* at 317.

198. Cynthia Wetmore, began work at EPA Region IX in the Remedial Action Branch in October 1989. Wetmore at 236,43. She was assigned to be the Remedial Project Manager ("RPM") for the B & B Arvin Site to perform a Remedial Investigation/ Feasibility Study ("RI/FS") and to select a remedy for the Site as reflected in the Record of Decision ("ROD"). *Id.*

199. The RI collects data necessary to adequately characterize the facility for the purpose of developing remedial alternatives. *Id.* The RI attempts to determine the scope of the contamination at a Site. *Id.* The FS involves the preparation of a list of remedial alternatives that are compared according to the nine criteria in the National Contingency Plan ("NCP"). *Id.*

200. Mr. Mandel determined that the Site Assessment investigation could support the RI. Mandel at 318. Mr. Mandel had extensive discussions with Ms. Wetmore to be sure that the data he was going to generate would be useful for the long-term response. *Id.*

201. The most serious safety concern at the Site was the hazard to workers from inhaling DBCP. *Id.* at 268.OSHA set such a low tolerance for DBCP that EPA could not measure it in the area samples were drilled. *Id.* In the absence of assurance that there was no DBCP exposure above the OSHA limit, all activities within a 50 foot hot zone of the drilling had to be at Level B protection. *Id.* at 268-69.Level B entailed supplied breathing air through supplied air masks and impermeable rubber-type suits with rubber gloves, rubber boots, and absolutely no skin exposed anywhere. *Id.* at 269. All the seams were taped with duct tape. *Id.* The requirement for level B

materially increased the costs of the Site Assessment on the order of three or four times. Woody at 429, 480.

202. One of the purposes of Site Assessment was to try to fill in gaps in what was known about subsurface lithology, i.e. the nature of the subsurface, the layers or formations, such as clay, sand or gravel, to identify areas where contaminants would be found. *Id.* at 317.Don Woody, a Senior Geologist, with E & E investigated the nature of the subsurface. *Id.* at 393.

203. The Arvin site is located near an "alluvial fan," where different types and sizes of sediments and soils washed down from the Tehachapi Mountains. Based on energy of the flooding event or stream, these materials were deposited over millions of years as interlocking and varying lenses of material. *Id.* Some of these lenses are clay, some of them are silts, and some are sands and gravels, each of which has a different permeability through which water moves at different speeds. *Id.* Mr. Woody testified that water moves preferentially through higher permeability materials, such as sands and gravels, as opposed to clays. *Id.* Water preferentially seeks out sand lenses, and zig-zags its way downward. *Id.* at 398-99.

204. Different layers of varying permeability have created different water bearing zones. *Id.* The top 200 feet of the Site subsurface generally consists of interlocking sands, clays, silts and gravels. *Id.* at 394. In the first 60 to 80 feet below ground surface there is a "perched aquifer," also called the A zone. *Id.* In a perched aquifer, the water migrates down to a zone of lesser permeability, where its downward path is suspended, like water in a clogged drain. *Id.* The

water still migrates downward but does so more slowly. *Id.*

205. At around 200 feet below ground surface is a strata known as the "Corcoran clay." *Id.* at 395.The Corcoran clay is a solid impervious clay; it was not deposited as lenses from the flooding off the mountains. *Id.* at 398.It is not lenticular in nature. Resting on top of that continuous and thick clay is the regional unconfined aquifer referred to as the B Zone. *Id.* at 397-98. Below the Corcoran clay is the C-Zone aquifer or the regional confined aquifer. The C aquifer is used to draw water for municipal use. *Id.* at 400.

206. The Site Assessment was expected to be expensive because of level B protection. Mr. Mandel concluded that one of the ways EPA could save time and money in Site investigation was to use an on-site mobile laboratory to reduce analytical turnaround time. Mandel at 325. EPA used a Field Analytical Services Program or "FASP" lab. The FASP lab operated under a Field Investigation Team contract with Ecology and Environment, Inc. *Id.* at 334. EPA's SCORES summary also shows that EPA paid $7,214.62 to E & E for operation of the on-site laboratory during the Site Assessment. Ex. G-10, Vol 1, Section 1, at 1.

207. In Fall of 1989, Mr. Mandel developed a budget for the Site Assessment and analysis project of about $1.5 million dollars; the final costs were closer to $2 million dollars for the TAT contract services. *Id.* at 278, 339.

208. Mr. Mandel was in charge of making sure that E & E performed the contract properly. *Id.* at 320.He reviewed the costs as they were incurred

for the TAT contracts on a daily basis. *Id.* at 322. Typically an EPA on-scene coordinator, four drilling subcontractors, four to eight TAT employees, and the personnel in the two FASP labs were on-site. *Id.* at 322-23.

209. Mr. Woody explained that E & E was dedicated by contract to EPA. *Id.* at 433.EPA issued a project number and a technical direction document for the Site work to be performed. *Id.* at 433-34.E & E employees kept time records which Woody reviewed. *Id.* Mr. Woody made sure that the actual bills, generated back in the office that were sent directly to EPA, were accurate.*Id.* at 436.

210. Mr. Woody oversaw the subcontracts that E & E had for the Arvin site. *Id.* He had no reason to doubt the accuracy of any of the subcontractor invoices that he signed off on. *Id.* at 434.

211. EPA's SCORES summary shows that EPA paid E & E $2,043,133.36 and Roy F. Weston $34,190.48 for assistance in the Site Assessment under TAT contracts. Ex. G-10, Vol 1, Section 1, at 2.

212. Based on the Site Assessment, EPA concluded that there was a release of hazardous substances from the "plant." *Id.* at 418.Three groundwater monitoring wells to the south and west of the Site as well as soil sampling showed contamination. *Id.* Three monitoring wells also showed that the gradients of the upper two aquifers are heading in a southerly direction generally towards the municipal well; this showed a threat to that well and to the people in the vicinity. *Id.* at 419.

213. Mr. Mandel believed that the Arvin municipal well was in danger. *Id.* at 335-36.This investigation and its results did not relieve his concern that there

was an immediate threat to the well. *Id.* at 342.Mr. Mandel ceased drilling because he documented an ongoing hazardous substance release from the plant. To fully characterize what was happening from the edge of B & B's plant to the Arvin well would have required the installation of many more deep monitor wells, which was beyond the budget for the removal program's investigation. *Id.* at 336. Mr. Mandel, however, did recommend that the emergency response group excavate some heavily contaminated dinoseb soils and sediments that were on site. *Id.*

214. After the TAT report was finalized in November 1990, EPA decided to perform a removal action in connection with a highly contaminated "hot spot" of dinoseb contamination near the east fence line of the Site. This contamination resulted from a 1983 tank leak.

215. In February 1991, Christopher Weden assumed responsibility from Mr. Mandel as the lead on-scene coordinator for the Arvin Site. Testimony of C. Weden ("Weden") at 513. Although the potential for contamination of the Arvin Well was still a concern to EPA's Emergency Response Section, Mr. Weden did not address this issue because EPA had issued a Section 106 order to the Railroads to install monitoring wells between the Site and the Arvin well, to act as an early warning mechanism. *Id.* at 514. The order also required the Railroads to perform other improvements around the site such as fence repair. Therefore, the Emergency Response Section was able to focus on the dinoseb hot spot, located on Ex. 687, around coordinates V and W and between 18 and 21. *Id.* at 515.

216. After obtaining approval of a budget of $841,193, Mr. Weden issued a delivery order to CET

Environmental Services (formerly Thorne Environmental Services), under an Emergency Response Cleanup Services contract ("ERCS"), to mobilize at the Site. *Id.* ERCS contractors generally perform the actual physical cleanup work in a removal action, as opposed to the technical assistance provided by the TAT contractor. *Id.* at 516. The ERCS contractors also provide equipment to perform the construction-type work. *Id.* On-scene coordinators such as Mr. Weden supervise the TAT and the ERCS personnel while they work on site. *Id.* at 517. To keep track of ERCS costs, ERCS contractors generate a daily computer form called a "1900-55." *Id.* That form details all labor, materials, equipment, and subcontracts that are used for that day. Mr. Weden, as on-scene coordinator reviewed that list for accuracy and signed off on it daily. *Id.* at 517-18.

217. The soil in the hot spot was highly contaminated with dinoseb, it could not be disposed of at a landfill which caused Mr. Weden to use an alternative treatment technology to remove the contaminants from the environment. *Id.* at 520.

218. EPA commissioned Roy F. Weston, working for ERT, to determine whether bioremediation would work. *Id.* Bench studies showed that bioremediation would not work because of the high levels of contamination. *Id.* at 521. The dinoseb killed the microorganisms that were supposed to attack the contaminants. *Id.* For that reason, Mr. Weden decided to wash the dinoseb out of the contaminated soil and to use an UV/ozonation system to treat the rinse water. *Id.* at 522-24.

219. The objective of the removal action was only to eliminate the hot spot, not to "remediate" the entire site or rid the entire site of dinoseb. *Id.* at 540.

Protecting groundwater was an important factor in the decision. *Id.* EPA wanted to remove this highly contaminated soil because of its potential adverse impact on groundwater. *Id.* The removal action was only to support the larger remedial action that would occur in the future. *Id.* at 541.

220. CET arranged for delivery of equipment needed to do the soil washing and containment of the resulting leachate. *Id.* at 515. Over the course of a month, EPA removed approximately 80 yards of contaminated soil from the dinoseb hot spot. *Id.* at 524, 534.

221. EPA rinsed the contaminated soil and treated the contaminated rinse water with the UV/Ozonation treatment system to break down and destroy the dinoseb molecules in the leachate. *Id.* at 524.EPA's ERT group subcontracted with Solarchem to provide an operator and a unit to perform the UV/Ozonation treatment. *Id.* at 525.EPA's SCORES computer summary shows that EPA paid $23,995.00 to Solarchem Environmental Systems for work related to the dinoseb removal. Ex. G-10, Vol 1, Section 1, at 2.

222. Mr. Weden tried to coordinate his activities with Cynthia Wetmore, EPA project manager. *Id.* at 526-27.Ms. Wetmore asked Mr. Weden to remove some of the tanks that were on the site, because EPA wanted to perform more assessment of the subsurface areas where the tanks were standing. Mr. Weden modified the delivery order and the statement of work, obtained additional funding for the project, and obtained necessary approvals from upper management. *Id.* at 527.

223. Mr. Weden increased the budget ceiling, to $1,323,593.00, to include the tank removal. *Id.* In

1992, Mr. Weden remobilized at the site and removed the tanks and their contents. *Id.* He used CET, under the ERCS contract. *Id.* at 527-28.TAT personnel also were on-site most of the time to perform health and safety monitoring and to arrange for sampling and analysis activities. *Id.* at 528.

224. Mr. Weden kept careful track of the budget as he supervised the work of contractors at the Site. *Id.* The total cost for CET under the ERCS contract was around $540,000.00. *Id.* The costs incurred by Roy F. Weston under the REAC contract were about $400,000.00, and the E & E costs under the TAT contract were $230,000.00. *Id.* at 528.The total cost of these activities was around $1.3 million dollars, including EPA's internal "intramural" costs. *Id.* at 529. EPA's SCORES summary shows that EPA paid $541,525.31 to CET, $229,111.09 to E & E, and $409,086.21 to Weston through ERT. Ex. G-10, Vol 1, Section 1, at 1-2.

225. When Ms. Wetmore was assigned to work on the RI/FS in 1989, her supervisors told her that the RI/FS would be an in-house RI/FS. *Id.* at 236, 243. Nonetheless, she received assistance from E & E, a national EPA contractor, under an Alternative Remedial Contract Support ("ARCS") contract. *Id.* at 245. Normally a contractor prepares the entire RI/FS. *Id.* at 244.To conduct the RI, EPA relied on E & E to help prepare and review sampling work plans for the Site and to generally assist in additional sampling. *Id.* at 245-46.

226. Ms. Wetmore supervised E & E. *Id.* at 248. She generally told the E & E employees what she needed, and E & E proposed the costs and negotiated with the EPA to reach agreement on the cost. *Id.* E & E submitted monthly progress reports. Ms. Wetmore

assured that the work was being performed in the agreed-upon number of hours. *Id.* at 248, 251. She had a budget for the project and kept track of costs as they arose. *Id.* at 248, 251.

227. EPA's computer SCORES summary shows that EPA paid $650,265.89 to E & E pursuant to the ARCS contract for assistance in the RI/FS and the remedial action. Ex. G-10, Vol 1, Section 1, at 1.

228. Ms. Wetmore set up a separate billing number for the EPA's in-house RI/FS costs, to com-pare actual costs to what EPA ordinarily paid con-tractors to perform an RI/FS. *Id.* at 249. The total contractor costs including payments to the State for the RI/FS were under $1 million. *Id.*

229. EPA relied on EMSL/Lockheed in Las Vegas to do seismic refraction. *Id.* at 246.The purpose of this seismic investigation was to determine whether the clay at the A-zone level was continuous or if there was a possible fault in the A layer. *Id.* The seismic refraction provided information on the continuity of the clay layer. *Id.* Lockheed Engineering also performed overflights for aerial photographs. *Id.* EPA's SCORES summary shows that EPA paid $55,911.86 to Lockheed Environmental Systems and Technology for the seismic investigation. Ex. G-10, Vol 1, Section 1, at 1; Vol 27, Section 1, at 1.

230. EPA reimbursed the State of California for participation in the RI/FS process. *Id.* at 246.The State reviewed documents, participated in meetings, and gave substantial input on the legally applicable or relevant and appropriate criteria ("ARARs") pursuant to CERCLA Section 121(d)(2)(A), 42 U.S.C. § 9621(d)(2)(A), that must be followed in remedy selection. *Id.* at 247.The State had to concur in the

remedy selection, and EPA reimbursed the State for its participation. *Id.* Through a grant from EPA, state personnel were involved in the RI/FS process. They attended meetings, reviewed documents, and helped determine State ARARs.

231. Ms. Wetmore negotiated with the State regarding the tasks that would be accomplished by the State and reached agreement with the State upon the number of man-hours required for the project. *Id.* at 247.EPA's SCORES summary shows that EPA paid $155,410.30 to the State of California for assistance and oversight. Ex. G-10, Vol 1, Section 1, at 1.

232. After a remedy is selected in the Record of Decision, the remedy then is designed in the remedial design phase. *Id.* at 249-50.The design phase entails producing drawings and construction documents to allow for the actual construction of the remedial action. *Id.* at 250.

233. After a remedy was selected in November 1993, EPA entered into an interagency agreement with the Army Corps of Engineers to design the remedy. *Id.* at 250.Ms. Wetmore established a budget under $500,000.00 and the Corps provided monthly progress reports to document the work that was performed.*Id.* at 250-51.Ms. Wetmore reviewed the progress reports and billings to ensure that the project remained under budget. *Id.* The remedial design came in under budget. *Id.* at 251.EPA's SCORES summary shows that EPA paid the Corps $481,217.74 for remedial design under the interagency agreement. Ex. G-10, Vol 1, Section 1, at 1.

234. EPA entered into an interagency agreement for the Corps to construct the remedy. Testimony of Travis Cain, ("Cain"), at 1381-82. By this time, how-

ever, Travis Cain had taken over as the Remedial Project Manager, and he actually supervised the construction of the remedy. *Id.* EPA's SCORES summary shows that EPA paid $41,115.74 to the Army Corps of Engineers for the remedial action construction, which began before November 7, 1996. *Id.;* Ex. G-10, Vol 1, Section 1, at 1.

235. In 1990 Tom Huetteman was assigned to work on the B & B Site to review sampling and field data. *Id.* at 562.He took the lead role for the Quality Assurance Management Section ("QAMS") in reviewing the analytical data for EPA's planned in-house RI/FS for the Site. *Id.* at 562-63.He helped develop the RI work plan, the quality assurance project plan, and the field sampling plan. *Id.* at 564. He also conducted some field sampling, primarily of groundwater, and a limited amount of soil sampling, including surface soil. *Id.*

236. Due to the tremendous volume of sampling, EPA relied on contractors to help manage that activity. *Id.* at 586. QAMS used a contractor called Viar, formerly known as "Dyncorp Viar." *Id.* at 585. Viar helped manage the network of laboratories that were part of the CLP program. *Id.* at 585. When EPA Region IX needed analytical services, QAMS used Viar to obtain those services through dozens of CLP laboratories around the country. *Id.* at 586. In addition, Viar provided oversight for EPA of such analytical work. *Id.* Certain "routine analytical services" were assigned to the stable of laboratories as the work came in. *Id.* Viar also subcontracted for "special analytical services," for unique tasks, such as dinoseb analysis. *Id.* Viar submitted bid requests to the laboratories and awarded the contract to the lowest bidder. *Id.*

237. While at QAMS, Mr. Huetteman supervised Viar. *Id.* at 586-87.Mr. Huetteman specifically remembered the CLP laboratories that worked on the B & B sampling: Associated Labs, Enesco Corporation, S-Cubed, Weyerhaeuser Analytical, and Datachem Lab. *Id.*EPA received bills directly from these labs. *Id.* at 587.EPA's SCORES computer summary shows that EPA paid $497,482.46 to these laboratories for sampling analysis at the Site. Ex. G-10, Vol 1, Section 1, at 1; Vol 27, Section 1, at 1.

238. ICF Technology was another contractor that supported QAMS' analytical services. *Id.* at 588.ICF provided quality assurance and quality control support for the Superfund program. *Id.* at 588.ICF provided chemists and other experts to review the raw laboratory data to ensure that laboratory analysis was proper. *Id.* Mr. Huetteman supervised their work as well. *Id.* He assigned work to them and reviewed the work product. *Id.* ICF sent invoices to the work assignment manager, who was Mr. Huetteman's immediate supervisor. *Id.* at 589. The work assignment manager reviewed the invoices with input from Mr. Huetteman to make sure that the work was done properly. *Id.* The ICF contracts were national contracts dedicated to EPA work. *Id.* EPA's SCORES computer summary shows that EPA paid $543,719.51 to ICF Technology, Inc. for review of sampling plans and review of laboratory results from other laboratories for the Site Assessment and RI/FS. Ex. G-10, Vol 1, Section 1, at 1.

AA. *EPA Selected the Interim Remedy According to the NCP.*

239. Ms. Wetmore testified that in weighing the remedial alternatives and selecting the remedial action, she balanced the nine criteria in the NCP,

including overall protection of human health and environment and compliance with ARARs. *Id.* at 2149-50.The nine criteria against which remedial alternatives under consideration should be weighed are: (1) overall protection of human health and the environment; (2) compliance with applicable or relevant and appropriate requirements (ARARs); (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility or volume through treatment; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state acceptance; and (9) community acceptance. 40 C.F.R. § 300.430(e)(9)(iii)(A)-(I). Not all nine criteria are given equal weight. Instead, they are divided into three classifications: threshold criteria, primary balancing criteria, and modifying criteria. Under this structure, "[o]verall protection of human health and the environment and compliance with ARARs (unless a specific ARAR is waived) are threshold requirements that each alternative must meet in order to be eligible for selection."40 C.F.R. § 300.430(f)(1)(i)(A). EPA explains in the preamble to the NCP that remedial alternatives "must be demonstrated to be protective . . . in order to be eligible for consideration in the balancing process by which the remedy is selected." 55 F.R. 8726 (1990). The NCP provides: "Each remedial action shall be cost-effective, provided that it first satisfies the threshold criteria set forth in § 300.430(f)(1)(ii)(A) and (B)." *Id.*; *see also* 55 F.R. 8727 (1990).

240. The primary focus of the RI/FS was groundwater contamination. *Id.* at 572.EPA concluded that the geologic formation that caused the A-zone groundwater to perch was not necessarily widespread. *Id.* at 610. The A-zone diminished south of the site. *Id.* Although the A-zone had a limited definition, the B-zone was a regional feature that

extended to the Arvin well. *Id.* EPA concluded a threat existed that the plume of contamination that originated from the B & B site would reach the Arvin City well by moving from the A-zone to the B-zone, where it could eventually contaminate the Arvin well. *Id.* at 610-12.

241. Based on preliminary data, EPA determined that the flow direction of the B-zone from the southern part of the B & B site was in a southern to southwest direction. *Id.* at 612.The exact flow direction of the B-zone groundwater was not critical to the issue of risk to the Arvin City well, because a contaminant plume can expand and diffuse perpendicular to its axis. *Id.* at 612-13.As the B-zone plume potentially expanded, it could intercept the Arvin City well even if the groundwater flow was not directly towards that well. *Id.* at 613.

242. Groundwater was the main focus of the RI for another reason. The B-zone aquifer itself was a potential drinking water source. *Id.* at 572-73.EPA's mission is to protect all current and potential sources of drinking water, and groundwater is included in the statutory term "environment." *Id.* at 750.Under California law potential drinking water sources include groundwater having total dissolved solids (tds) below 3,000 and the capacity to be pumped at a rate of 150 gallons a day. *Id.* at 622-23.The B-zone meets both criteria. *Id.* at 622. The B-zone groundwater qualified as a potential source of drinking under California law. *Id.* at 618.

243. Because under State law the B-zone was a potential drinking water source, EPA treated this as an ARAR pursuant to Section 121(d) (2)(A) of CERCLA, 42 U.S.C. § 9621(d)(2)(A). *Id.* at 619-20, 573. The State's antidegradation policy, requiring the

protection of all drinking water in the State, was treated as an ARAR. EPA attempted to protect the B-zone water to comply with this ARAR. *Id.;* Wetmore at 258. The preamble to the National Contingency Plan and a 1986 policy document referenced in the preamble direct EPA to protect potential drinking water sources. Huetteman at 573, 637-38. This was consistent with the NCP.

244. EPA had no evidence that any particular person was using the B-zone groundwater, but where groundwater resources are depleted, as throughout the Central Valley of California over the next 10 to 20 years time frame, it was realistic to believe that a resident would attempt to draw water from the B-zone, particularly since drinking water wells are common in the area. *Id.* at 668.

245. The main threat to the B-zone was very high concentrations of contamination in the A-zone groundwater. *Id.* at 573, 575. There is an identified connection between the A and B zones, because the B-zone is contaminated. *Id.* EPA had already observed B-zone contamination at concentrations well above standards set for drinking water sources, the Maximum Contaminant Levels ("MCLs") under the Safe Drinking Water Act. *Id.* at 573.

246. EPA detected 1,2-DCP at approximately 1200 parts per billion (ppb), greatly in excess of the MCL of 5 ppb. *Id.* at 748.EPA believes A-zone contamination is a source, *id.* at 582, and presents the risk that the single plume of contamination under the B & B plant will migrate into the B-zone. Wetmore at 2087, 2098; Huetteman at 573 733, 749.

247. EPA selected an interim extraction and treatment remedy for the A-zone based on this priority.

Huetteman at 582. EPA intended to follow the A-zone interim remedy and then do further work on the B-zone. *Id.* at 582, 682. EPA did not need to perform a remedial investigation of the B-zone before the A-zone remedy. Huetteman at 613. EPA knew that the B-zone qualified as a potential source of drinking water and that it was contaminated above MCLs. *Id.* at 613, 2114.

248. To determine the cleanup level for the A-zone, Mr. Huetteman used fate and transport models to determine what concentration level in the A-zone would no longer pose a threat to the B-zone. *Id.* at 574.Modeling indicated a range of 10 to 100 times the MCL for A-zone contaminants would protect the B-zone. *Id.* at 574-75.The cleanup goal for the A-zone for EDB, DBCP, 1,2-DCP, 1,2,3-TCP and dinoseb was set at 10 to 100 times the MCL. These are the principal chemicals of concern in the A-zone. *Id.* at 575.EPA recognized there was some uncertainty but anticipated that the B-zone investigation would provide more data, and Site cleanup goals could be refined. *Id.*

249. EPA selected a cleanup level of 80 parts per million for the first 7 feet of the sub-surface soil to address dinoseb contamination. *Id.* at 65-52. Because dinoseb is not volatile, it was the only chemical that remained on the surface soils. Dinoseb presented potential health risks based on human exposure to surface soils. *Id.*

250. EPA performed a risk assessment calculation to determine the cleanup levels that relied on a risk assumption protocol developed for the RCRA program. *Id.* at 652-54.

251. EPA did not perform a risk assessment for the A-Zone because there were no receptors for the

A-zone groundwater. *Id.* at 2146.A risk assessment was not necessary for the B-zone, because the MCLs under the Safe Drinking Water Act were used as risk-based goals for the B-zone. *Id.* at 2146.CERCLA expressly directs EPA to attain MCLs where they are relevant and appropriate. 42 U.S.C. § 9621(d)(2)(A). Here, the MCLs established the risk level for the B-zone groundwater. Wetmore at 2146-47, 2150.

BB. *The Remedy*

252. The selected remedy includes extraction of the contaminated groundwater and treatment with UV/Oxidation to destroy the contaminants. Huetteman at 576. Such treated groundwater then is reinjected into the A-zone. *Id.* This type of remedy is a fairly common remedy for groundwater contamination. *Id.*

253. The remedy also calls for paving-over the entire site and placing a RCRA cap over the sump and the pond. *Id.* The State RCRA regulations were deemed to be ARARs. These regulations, if otherwise applicable, would have required such closure. *Id.* The paving of the site was primarily to control surface water drainage, which had been a problem at the Site. *Id.* at 576-77.Paving will reduce the infiltration of rainwater, to deter further transport of contaminants within the subsurface. *Id.* at 577. Areas where dinoseb contamination was particularly high were to be excavated, moved to the sump, and put under the RCRA cap. *Id.*

254. In response to comments from the Railroads, EPA decided not to use the UV treatment system and instead selected a granulated activated carbon ("GAC") treatment system which removed the contamination from the water for offsite disposal. *Id.* at 607. After the GAC system was selected, however, a dual phase

extraction methodology was adopted that included extraction of vapor released from the contaminated water. *Id.;* Wetmore at 2157; Kueper at 3865.

255. EPA's intent was to slowly phase in the extraction wells to learn from experience and optimize the extraction system. Huetteman at 583; Cain at 1396. Characterization of a site often continues past the Record of Decision into the design and remedial action phases, and the B & B Site was no exception. Huetteman at 583. EPA intends to continue to collect additional data and gain experience from installing the system on a small scale. *Id.*

256. If the phased wells showed that the extraction system did not work, EPA was not rigidly locked into that remedy. *Id.* at 583-84.EPA contemplates that additional measures might be necessary in connection with the final remedy that would include the B-zone. *Id.* at 584.Additional flexibility exists because remedies are reviewed every five years and can be changed based on technical merits, or as new information or technologies develop. *Id.* at 624-25.

CC. *EPA's Accounting System Provides an Accurate Accounting: Railroads' Objections*

257. The Integrated Financial Management System, IFMS, is EPA's computerized accounting system. Testimony of Charles Young ("Young") at 1269, 1275. Mr. Young is an expert in EPA accounting.

258. All budgetary and financial transactions are entered into the IFMS. *Id.* at 1270. The amount that is originally authorized and obligated for each contract is entered into the computer. As work proceeds under the contract, the contractor sends invoices to EPA which are reviewed by work assignment managers, who supervised the work. *Id.* at 1271-72; *see, e.g,*

Wetmore at 251; Huetteman at 589. A contract project officer, after any necessary consultation with work assignment managers, approves and forwards the contractor's invoice for payment to EPA's office in Research Triangle Park, North Carolina. Each transaction is entered into the IFMS computer system. *Id.* at 1272.Each Superfund transaction is identified with a Site/Spill ID number. *Id.* at 1270.Contractor payments are entered into the system as they are paid. *Id.*

259. On a nightly basis, the IFMS computer system prepares a treasury schedule instructing the Department of the Treasury to make electronic fund transfer payment of the invoices from EPA contractors. *Id.* at 1273. The IMFS necessarily records only paid data. If a transaction is not entered into IFMS, then a treasury schedule cannot be generated authorizing the payment. *Id.* at 1273. The Department of the Treasury sends back confirmations of payment to EPA and EPA reconciles the confirmations with the information in the computer on a monthly basis. *Id.* EPA also enters time sheet entries for EPA employees every two weeks according to the Site/Spill ID number. *Id.* at 1271.

260. "SCORES" stands for the Superfund Cost Organization Reporting System. SCORES is a DOS based computer program that retrieves information out of IFMS about specific sites based on the Site/Spill ID number. *Id.* at 1275. Information for the SCORES report is downloaded from the IFMS. Testimony of Sharon Johnson, (April 15), at 1902 ("Johnson"); *Young* at 1275. The SCORES report summarizes EPA's costs in a readable and understandable manner, *id.* at 1281, to detail all transactions associated with a particular Superfund site.

Young at 1275, 1281. The SCORES report documents EPA's total response costs, including both direct and indirect costs. Young at 1281-82, 1285.

261. A SCORES report is a snapshot of site costs that are paid as of a certain date. Volume 1 of Exhibit G-10 is a SCORES report for site spill identifier 09-H2 for the Site. Charges made in the SCORES system after that date appear in subsequent SCORES reports. Johnson at 1975-76. The annual allocation rates for particular contracts and indirect cost rates are also entered into the SCORES computer system. Young at 1282.

262. EPA places a bar code on each paper document relating to payment of costs and scans the documentation into the Superfund Cost Recovery Image Processing System ("SCRIPS"). The bar code number is entered into IFMS. Young at 1257, 1358. For a cost package, EPA retrieves the documents scanned into SCRIPS by Site/Spill ID Number. Young at 1275, 1358. The SCORES report in evidence accurately summarizes the documentation showing that EPA has incurred costs, such as the invoice, the site specific redistribution, the treasury schedules and time sheets. Young at 1353, 4262.

263. An entry on a SCORES report proves that the cost has been paid, because SCORES only summarizes paid costs that are included in IFMS. *Id.* at 1358.

264. In addition, EPA has a system of internal controls to review contract invoices before any contractor invoice is paid. *Id.* at 1276-77.EPA builds into each of its contracts a spending or hour limitation on the work that is requested and performed. *Id.* at 1296-98.Budgets are prepared and technical direction

documents are issued to define the scope of any EPA project. Weden at 513, 528; Wetmore at 248; Young at 1270, 1276.

265. EPA monitors the work as it is performed. *Id.* at 4297-98.Work assignment managers, such as on-scene coordinators or remedial project managers, are on-site reviewing the progress of the work and the work product delivered by the contractors. Young at 1277. EPA project officers authorize payment of invoices after consultation with work assignment managers. Young at 1272, 1274, 1277-78, 1342.

266. EPA conducts incurred-costs audits over the life of a contract and closeout audits at the expiration of the contract. If a contractor charge is at variance with the contract terms, the charge will be disallowed and not paid by EPA. *Id.* at 1328, 1356. The cost recovery packages contain reconciled invoice amounts for any costs incurred by EPA. *Id.* at 1273-74, 1391.

267. All SCORES and related reports for the Arvin Site conform to EPA accounting policies and procedures.

DD. *Internal EPA Indirect Costs Are Recoverable.*

268. Certain EPA internal costs can be accounted for on a site specific basis and are identified as direct costs. Young at 1288. EPA internal direct costs include the costs such as regional payroll costs, the headquarters payroll costs, the regional travel costs, and the headquarters travel costs. Young at 1286-87.

269. Other EPA internal costs, by their nature, cannot be accounted for on a site-specific basis but are necessary for the operation of the Superfund program and support site specific cleanup efforts. These are called indirect costs. Indirect costs are

costs that benefit all EPA programs, such as the EPA's personnel office or computer center, a portion of which are allocated to all EPA regions. Young at 1288-89.

270. Because indirect costs benefit programs other than Superfund, an indirect cost rate is applied based on the percentage of benefit to the Superfund program. *Id.* The indirect cost rate identifies the costs of running the entire Superfund program. *Id.* at 1288.

271. For example, the indirect costs of running an EPA personnel office are allocated based on the number of EPA employees working in the Superfund program in relation to all other EPA employees not in Superfund. *Id.* at 1288-89. EPA computer center costs are allocated based on the amount of time that the Superfund employees use computer time compared to other EPA offices. *Id.*

272. EPA's indirect costs are computed in accordance with a methodology developed and recommended by the accounting firm Ernst & Whinney, now Ernst & Young, *id.* at 1287-88, that provides guidance on procedures necessary for a cost allocation system and specific steps EPA should take in implementing a cost allocation system. Young at 1287. EPA calculates indirect costs according to this methodology. *Id.*

273. Indirect rates are recalculated annually and entered into IFMS and SCORES, to include these costs in a SCORES report. Young at 1282. For each Site, the indirect rate is multiplied by the number of employee hours recorded at that site, generating the total indirect costs for the site. In the case of the B & B Arvin Site, EPA's SCORES summary shows that EPA allocated indirect costs were $1,351,558.90. Ex. G-10, Vol 1, Section 1, at 1.

EE. *Specific Contractor Costs Are Properly Allocated According to EPA's Annual Allocation Procedure.*

274. In order for EPA to effectively respond to releases and threatened release of hazardous substances, EPA relies on EPA dedicated contractors such as E & E under the Technical Assistance Team ("TAT") contract. Young at 1297, 4297; *see, e.g.*, Huetteman at 589; Wetmore at 245-46. EPA generally contracts to pay for a large number of contractor employee hours and as the work progresses, the contractors invoice EPA, breaking down the costs among several sites. Young at 4249, 4297. Although contractors work on a number of sites, EPA may request work from these contractors that does not occur at or in relation to a specific site, but which nonetheless supports the dedicated contract and site response activities under the contract. EPA allocates these costs to specific sites pursuant to an annual allocation procedure. Young at 1296-1203, 1309-10.

275. For example, if EPA requests E & E to train all employees that will work on TAT contract projects at the outset of the contract, those training costs do not occur at a specific site, but EPA could not perform any response activities if its TAT contractors were untrained. Such costs support the entire contract and benefit all sites subject to contract work. Young at 1313. If the TAT contract requires use of equipment, EPA may request the contractor to use some of the TAT employee hours to maintain all equipment, *id.* at 1297, even if a piece of equipment is not necessarily used at a particular site, equipment and maintenance costs are fairly allocated to all sites that require use of the dedicated contractor. *Id.*

276. Such a procedure is a standard cost accounting procedure. *Id.* at 1299.EPA allocates non-site specific contract dollars it incurs from its contractors accordingly. Young at 1283-84. EPA's annual allocation procedures are designed to identify effectively which costs are appropriate to allocate to Superfund sites, to assure that the costs are allocated among the various sites in a reasonable way, in accordance with EPA accepted cost accounting principles. This results in identifying nonsite dollars in the cost recovery process. *Id.* at 1335.

277. The principles which underlie EPA's annual allocation methodology are similar to those EPA has used to develop its indirect cost rate. *Id.* at 1296. Allocated costs are similar to indirect costs because they are real costs, but they cannot be easily broken down for a specific site. *Id.* at 1283. The annual allocation costs could be treated as indirect costs, but it is more accurate from an accounting perspective to distribute these costs to the sites subject to the dedicated contract, as opposed to all sites, whether related to the dedicated contract or not. *Id.* at 1283-84.

278. Annual allocation is not general overhead, because overhead costs are distributed among all invoices a company generates. Rather, annual allocation costs are contract specific. *Id.* at 1299-1300. They are tasks EPA has asked a contractor to perform to support a dedicated contract. *Id.* For example, if EPA requests a dedicated contractor to provide management services for a particular national contract, these program management costs are properly allocated to all sites that are subject to the contract in proportion to direct costs per site. Young at 1296, 1299-1300.

279. EPA allocates non-site specific contract dollars that it pays its contractors in support of site cleanup only, to the sites on which that contractor has worked. *Id.* at 1284.

280. The annual site allocation amount is based upon an objective formula set forth in a guidance document prepared by EPA for its contractors. *Id.* at 1284-85.Each contractor follows EPA guidance to determine which costs are subject to annual allocation. *Id.* at 1285.The contractors' annual allocation reports are reviewed by EPA. *Id.* at 1302.

281. The allocation process results in a determination of a national, regional, and site-specific allocation rate, per contract. Multiplying the rate by the direct site amount billed by the contractor yields each Superfund site's share of the non-site-specific costs charged to EPA by the contractor. Provisional annual allocation rates are established to determine allocable costs when a final rate has not been established. Young at 1283, 1196-1303.

FF. *EPA's Cost Package Documents its Costs*

282. The Railroads made a wholesale attack on EPA's cost and allocation methodology, ignoring well-established legal precedent that has validated EPA CERCLA cost documentation procedures and practices. The Railroads' cost recovery expert witness was neither credible nor persuasive. He attempted to apply general cost accounting principles in a manner that was not helpful and resulted in unnecessary expenditure of time.

283. Governments' Exhibit G-10 is the final enforcement cost package prepared by EPA Region IX for the B & B Arvin Superfund site. Johnson at 1909. The EPA process that produced the total dollar figure

shown on the SCORES report provides an accurate accounting of the costs incurred by EPA on the B & B Arvin Superfund site for site spill identifier number 09-H2 at that time. *Id.* at 1995-96.

284. The same procedures used to prepare the cost package for site spill identifier 09-H2 were used to prepare the cost package for site spill identifier number 09-W4, which summarizes the RI/FS costs. *Id.* at 1997.

285. The RI/FS SCORES report and related cost package represent an accurate and reliable accounting of the $963,590.25 dollar amount, which represents the costs associated with site spill identifier 09-W4. *Id.* at 2009-10. There is sufficient documentation in the cost package and the site file to support the costs set out in the SCORES reports for both site spill identifier numbers 09-H2 and 09-W4. *Id.* at 2010.

286. For cost recovery purposes, contractor invoices are used to show how much EPA was charged for activities at a particular Superfund site, and treasury schedules are used to show how much EPA paid for activities at a particular Superfund site. No other documents are needed to make these determinations. However, the information is provided in summary form in the SCORES Report. Young at 4253.

287. In connection with EPA's response actions, EPA has paid the following contractors the following amounts as of June 30, 1997:(1) $31,239.55 to ATSDR for the preliminary health assessment; (2) $409,086.21 to Weston through EPA's Emergency Response Team, for work related to the Site Assessment and dinoseb removal; (3) $2,043,133.36 to E & E and $34,190.48 to Roy F. Weston for assistance

in the Site Assessment under TAT contracts; (4) $7,214.62 to E & E for operation of an onsite laboratory during the Site Assessment; (5) $541,525.31 to CET for the technical and logistical support relating to the excavation and soil washing of the dinoseb hot spot; (6) $22 9,111.09 to E & E under a TAT contract for work relating to the dinoseb removal; (7) $23,995.00 to Solarchem Environmental Systems for work related to the dinoseb removal; (8) $543,719.51 to ICF Technology, Inc. for review of sampling plans and review of laboratory results from other laboratories for the Site Assessment and RI/FS; (8) $55,911.86 to Lockheed Environmental Systems and Technology for a seismic investigation; (9) $650,265.89 to E & E pursuant to the ARCS contract for assistance in the RI/FS and the remedial action; (10) $481,217.74 and $41,115.74 to the Army Corps of Engineers for the remedial design; (11) $497,482.46 for various laboratories for sampling analysis; (12) $155,410.30 to the State of California for assistance and oversight; (13) $15,960.48 to Planning Research Corporation for an investigation into potentially responsible parties; and (14) $4,326.56 to Armstrong Data Services and $7,338.32 to Labat Anderson for document management at EPA. In addition, EPA payroll costs as of June 30, 1997 were $551,091.58. EPA has attributed $1,351,558.90 in indirect costs to these response actions. In total, EPA has spent at least $7,809,683.46 as of June 30, 1997, analyzing and remediating the Site, not including interest, for response actions in connection with the B & B Arvin facility. *See* Ex. G-10, Vol 1, Section 1, at 1-2, Vol 27, Section 1, at 1-2.

287A. The Railroads, Shell, and DTSC have stipulated that as of March 31, 1998, DTSC had incurred response costs of $401,872.81, and addi-

tional costs of $6,171.73 in interest, which DTSC contends is required to be recovered by California Health & Safety Code section 25360.1. The interest has been calculated in accordance with the factors set forth in Health & Safety Code section 25360.1, however, the Railroads and Shell reserve the right to challenge DTSC's recovery of this interest as a matter of law.

GG. *Recoverability of the Railroads' Response Costs*

287B. In October, 1991, EPA issued Administrative Order 91-6 pursuant to CERCLA section 106 requiring the Railroads to perform specified investigative and remedial tasks. The Railroads hired environmental consultants and incurred costs in connection with the investigation of the sources of the contamination. Shell has not received any administrative orders and has not incurred any response costs in connection with Arvin. Pretrial Order, Undisputed Fact 24; Ex. 313.

287C. The Railroads retained Kennedy/Jenks ("K/J") to assist them in complying with Order 91-6. K/J submitted a work plan which was later accepted and approved by EPA. Wetmore at 254:6-255:9, 2076:15-2078:20 (approved plan and accepted changes in location of wells); Testimony of Sarah Bartling at 4138:15-24; Ex. 3013-3015.

287D. Part I of the work plan performed by K/J consisted of constructing a berm around the entire Arvin site, repairing fencing and maintaining site security, including posting warning signs around the perimeter of the site, and surveying the site for purposes of installing groundwater wells. Ex. 3013; Bartling at 4139:11-4141:14.

287E. Part II of the work plan performed by K/J was to evaluate the distribution of chemicals in soils and groundwater and the site lithology in order to assess where to place and how to design the required groundwater wells. Although soil sampling and groundwater testing were not specifically called for in the EPA's Order, such activities were reasonably necessary to ensure the safety of K/J's workers and the proper placement and design of the wells. Ex. 3014; Bartling at 4141:15-4144:15, 4178:4-4179:21; Kalinowski at 3503:25-3512:14.

287F. During the third and last phase of its work, K/J drilled, installed and developed groundwater monitoring wells along with sampling pumps. Bartling at 4145:7-16, 4177:7-18.

287G. The Railroads cooperated with the EPA and complied with Order 91-6. Wetmore 254:6-255:9, 2070:20-2071:3, 2078:18-20; Bartling at 4153:18-20; EPA certification, Ex. 3015.

287H. K/J provided the data it collected to the EPA. EPA incorporated the geological data gathered by K/J into the RI/FS, and it also reviewed the groundwater data at least to determine if it was consistent with EPA's prior conclusions. Huetteman at 734:7-23; Wetmore at 2091:13-16; Bartling at 4146:10-17.

287I. EPA also reviewed the soil data to help fill in data gaps and to increase its confidence in the selection of locations for the groundwater wells. Wetmore at 2079:9-2080:5.

287J. Many of the borings K/J drilled, such as CA-21, CA-25, CA-22 and CA-24, were placed along the anticipated groundwater gradient. Bartling at 4147:20-25. K/J also drilled eight borings (S16A,

S19A, S21A, CA16, CA19, CA20, CA26, CA27) and took samples primarily to confirm or dispute the accuracy of the EPA's sampling results. Bartling at 4151:3-17, 4152:24-4153:17; Ex. 3032

287K. The Railroads paid K/J $3,057,700 for their work at Arvin. Ex. 3032; Ex. 3012; Bartling at 4157:3-9. Of this, some $450,382 represents the cost of installing berming and fencing around the Railroad property ($11,292) and of drilling the eight borings placed primarily in order to determine the Railroads' potential liability ($439,090). Such costs are reasonably apportionable to the Railroads. Ex. 3032; Kalinowski at 3515:11-3518:17. The balance of the Railroads' costs, $2,607,318, relate to the groundwater investigation and to the B & B Property. Such costs were necessary to respond to the EPA's order, and were consistent with the NCP. The costs compare favorably to the costs incurred by the EPA in connection with the drilling work EPA undertook at this site, and were reasonable. Kalinowski at 3500:4-3503:24, 3512:10-14; Ex. 3011, 3012, 3032.

IV. CONCLUSIONS OF LAW

A. *Jurisdiction and Venue*

288. The Court has jurisdiction over this matter under 28 U.S.C. §§ 1331, 1345.

289. Venue is proper in this district pursuant to 28 U.S.C. § 1391(b) and (c) and 42 U.S.C. § 9613 because the claims arise, and the releases of hazardous substances occurred at the Site located in the Eastern District of California, Fresno Division.

290. The DTSC makes its claims under sections 107 and 113 of CERCLA, 42U.S.C. §§ 9607, 9613.

B. *CERCLA Generally*

291. CERCLA is a broad, remedial statute enacted by Congress in order to enable the EPA to respond quickly and effectively to hazardous waste spills that threaten the environment, and to ensure "that those responsible for any damage, environmental harm, or injury from chemical poisons bear the costs of their actions." S.Rep. No. 848, 96th Cong., 2d Sess. 13 (1980), U.S.Code Cong. & Admin. News 1980, 6119, reprinted in 1 CERCLA Legislative History at 320. Under CERCLA, the EPA is authorized to undertake remedial efforts to clean up hazardous waste spills and, where an "imminent and substantial endangerment to the public health exists," to take legal action in order to compel potentially liable parties to undertake their own private clean-up efforts. *See B.F. Goodrich v. Murtha,* 958 F.2d 1192, 1197 (2d Cir. 1992); 42 U.S.C. § 9606(a).

292. In enacting CERCLA, Congress established four groups of responsible parties, all of whom are liable regardless of intent, subject to a limited num ber of narrowly construed defenses to CERCLA liability. *See* 42 U.S.C. § 9607(a) and (b).

293. Responsible parties generally include (1) *generators* of hazardous waste; (2) present or past *owners* at the time of disposal of facilities where hazardous wastes are disposed of; (3) *transporters* of hazardous wastes, and (4) *arrangers,* those who arrange for the disposal or transport of hazardous waste. *See* 42 U.S.C. § 9607(a) (emphasis added); *Murtha,* 958 F.2d at 1198; *Florida Power & Light Co. v. Allis Chalmers Corp.*, 893 F.2d 1313, 1317 (11th Cir.1990).

294. Through this scheme of liability. [sic] Congress envisioned a system that would permit the EPA

to recoup its costs from a source of funds other than the taxpayers. It was Congress' intent that CERCLA be construed liberally to accomplish these goals. *See Murtha,* 958 F.2d at 1198.

C. *Elements of Liability*

295. To establish a prima facie case of CERCLA liability, a plaintiff must show that (1) the defendant is a responsible party as defined by section 9607(a)(1)-(4); (2) that the site at issue is a "facility" as defined by section 9601(9); (3) that there has been a release of hazardous substances at the facility or that such a release is threatened; and (4) that the Government incurred costs which are not inconsistent with the National Contingency Plan ("NCP") in responding to the release. *See Murtha,* 958 F.2d at 1198;*Cose v. Getty Oil Co.,* 4 F.3d 700, 703-04 (9th Cir.1993); *Kaiser Aluminum & Chem. Corp. v. Catellus Dev. Corp.,* 976 F.2d 1338, 1340 n. 4 (9th Cir.1992); *3550 Stevens Creek Assocs. v. Barclays Bank of California,* 915 F.2d 1355, 1358 (9th Cir.1990), *cert. denied,*500 U.S. 917, 111 S.Ct. 2014, 114 L.Ed.2d 101 (1991); *Ascon Props., Inc. v. Mobil Oil Co.,* 866 F.2d 1149, 1152-53 (9th Cir.1989); *United States v. Aceto Agric. Chems. Corp.,* 872 F.2d 1373, 1378-79 (8th Cir.1989); *United States v. Iron Mountain Mines, Inc.,* 812 F.Supp. 1528, 1536-37 (E.D.Cal.1992).

D. *CERCLA Defenses*

296. Inconsistency with the NCP or definitional exclusions, are deemed statutory "exemptions" on which a defendant bears the burden of proof. *See Idaho v. Hanna Mining Co.,* 882 F.2d 392, 396 (9th Cir.1989); *In re Acushnet River & New Bedford Harbor Proceedings,* 716 F.Supp. 676, 687 n. 19

(D.Mass.1989); *see also United States v. First City Nat'l Bank of Houston,* 386 U.S. 361, 366, 87 S.Ct. 1088, 18 L.Ed.2d 151 (1967).

297. Courts also allow defendants to attempt to limit liability by apportionment of the harm, but apportionment should not be the equivalent of a complete defense as enumerated in Section 107(b) of CERCLA. *See Matter of Bell Petroleum Servs. Inc.,* 3 F.3d 889, 896 (5th Cir.1993) (noting that apportionment under Restatement only limits liability and does not operate as complete defense); *United States v. Northernaire Plating Co.,* 670 F.Supp. 742, 748 (W.D.Mich.1987) (apportionment of zero based on lack of any causation conflicts with third party defense), *aff'd, United States v. R.W. Meyer, Inc.,* 889 F.2d 1497, 1507-08 (6th Cir.1989) (adopting reasoning of district court), *cert. denied,*494 U.S. 1057, 110 S.Ct. 1527, 108 L.Ed.2d 767 (1990); *Weyerhaeuser Co. v. Koppers Co., Inc.,* 771 F.Supp. 1420, 1425-26 (D.Md.1991) (apportionment is not a substitute for third party defense); *accord United States v. Pretty Products, Inc.,* 780 F.Supp. 1488, 1499 & n. 14 (S.D.Ohio 1991) (allowing defendant to avoid liability because of pl aintiff's failure to prove causation is inconsistent with third party defense); *Lincoln Props., Ltd. v. Higgins,* 823 F.Supp. 1528, 1536-37 (E.D.Cal.1992) (CERCLA definition should not be applied to amount to end-run around third party defense); *United States v. Fairchild Indus., Inc.,* 766 F.Supp. 405, 411 (D.Md.1991) ("defenses" that are almost the same as third party defense not allowed); *cf. Rohm & Haas Co.,* 2 F.3d 1265, 1280 (3d Cir.1993) (stating that case may arise where zero share apportioned, but because defendant could not establish that it was not source of contamination under third party defense, no need to reach question).

298. The third party defense issue is briefed on page 97 of this Memorandum Decision.

E. *"FACILITY"*

1. *The B & B Arvin Plant is a "Facility"*

299. Section 101(9) of CERCLA, defines a "facility" as:

> (A) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located . . . .

42 U.S.C. § 9601(9).

300. CERCLA's definition of "facility" suggests several different concepts or applications. First, a facility can be a container-like object that is the source of a release or threatened release such as a "pipe," "rolling stock" or a "storage container." *See Amcast Indus. Corp. v. Detrex Corp.*, 2 F.3d 746, 750 (7th Cir.1993), *cert. denied*,510 U.S. 1044, 114 S.Ct. 691, 126 L.Ed.2d 658 (1994) (tanker truck that leaked onto property to be remediated was "facility"); *Reading Co. v. City of Philadelphia*, 155 B.R. 890, 906-07 (E.D.Pa.1993) (city liable as owner/operator of railroad cars that leaked PCB onto area that was to be remediated); *United States v. Bliss*, 667 F.Supp. 1298, 1303, 1305, 1307 (E.D.Mo.1987) (defendant liable under § 107(a)(1) because he owned trucks from which hazardous waste was sprayed onto the ground and defendant liable under § 107(a)(2) be-

cause he owned the property at the time hazardous wastes were disposed of there).

301. A facility can be a geographic area that is the source of a release or threatened release such as a "landfill," a "pit" or a "lagoon." *See Dedham Water Co. v. Cumberland Farms Dairy,* Inc., 889 F.2d 1146, 1148, 1154 (1st Cir.1989) (area that was source of water contamination); *NutraSweet Co. v. X-L Eng'g Corp.,* 933 F.Supp. 1409, 1415 (N.D.Ill.1996) (hazardous substances released on property migrated to and contaminated neighboring property as a result of groundwater flow; source of contamination was facility or location where contaminants spread on both facilities); *United States v. A & N Cleaners and Launderers, Inc.,* 854 F.Supp. 229, 231-32, 240-43 (S.D.N.Y.1994) (purchaser of property that was source of groundwater contamination liable; no innocent owner defense); *Bliss,* 667 F.Supp. at 1303, 1307 (defendant liable under 107(a)(1) because he owned trucks from which hazardous waste was sprayed onto the ground and under § 107(a)(2) because he owned the property where hazardous wastes were disposed of); *See Artesian Water Co. v. Gov't of New Castle County,* 659 F.Supp. 1269, 1280-84 (D.Del.1987), *aff'd,*851 F.2d 643 (3d Cir.1988) (defendant liable under § 107(a)(1) because it owned landfill from which hazardous waste leached into aquifer); *see also United States v. CDMG Realty Co.,* 96 F.3d 706 (3d Cir.1996) (CERCLA release contemplates gradual spreading of contamination such as leaching of contaminants at landfill).

302. A facility can be the geographic area wherever a hazardous substance "has come to be located" by passive spreading such as groundwater migration, surface runoff, wind dispersal, or by active human

channeling or direction. *NutraSweet Co.*, 933 F.Supp. at 1415, 1417-18 & n. 3, 1420 (hazardous substances released at property migrated to and contaminated neighboring property as a result of groundwater flow; source of contamination was facility or both properties were facility); *Mead Corp. v. United States*, 1994 WL 733567, *3 (S.D.Ohio January 14, 1994) (entire contaminated aquifer that extended over a wide area was a facility); *United States v. Ward*, 618 F.Supp. 884, 892, 895 (D.C.N.C.1985) (210 miles of road contaminated by active spraying); *United States v. Metate Asbestos Corp.*, 584 F.Supp. 1143, 1148-49 (D.Ariz.1984) (wind dispersal of asbestos at mobile home park).

303. A facility can consist of a general geographic area (a "site") within which there has been some storage or placement of a hazardous substance, such as a general plant area where different waste streams, spills and incidents historically have led to contamination in different areas. *See, e.g., Redwing Carriers, Inc. v. Saraland Apartments*, 94 F.3d 1489, 1494, 1510 (11th Cir.1996); *FMC Corp. v. United States Dep't of Commerce*, 29 F.3d 833, 835-36 (3d Cir.1994); *Bancamerica Commercial Corp. v. Trinity Indus.*, 900 F.Supp. 1427, 1435-37 (D.Kan.1995), *aff'd in part and rev'd in part on other grounds*, 100 F.3d 792 (10th Cir.), *amended*, 103 F.3d 80 (10th Cir.1996); *Gopher Oil Co. v. Union Oil Co. of California*, 757 F.Supp. 988, 990, 992-94 (D.Min.1990), *aff'd and remanded*, 955 F.2d 519 (8th Cir.1992); *United States v. Northernaire Plating Co.*, 670 F.Supp. 742, 744-46 (W.D.Mich.1987), *aff'd sub nom. United States v. R.W. Meyer, Inc.*, 889 F.2d 1497 (6th Cir.1989), *cert. denied*, 494 U.S. 1057, 110 S.Ct. 1527, 108 L.Ed.2d 767 (1990); *Metate Asbestos Corp.*, 584 F.Supp. at 1148-49.

304. The contamination within a geographic facility need not be continuous.*United States v. Colorado & Eastern R.R. Co.*, 50 F.3d 1530, 1533 (10th Cir. 1995) (facility expanded to include additional parcel); *Akzo Coatings Inc. v. Aigner Corp.*, 960 F.Supp. 1354, 1358-59 (N.D.Ind.1996), *aff'd in part and vacated in part,*197 F.3d 302 (7th Cir.1999) (five separate areas); *Plaskon Elec. Materials v. Allied Signal,* 904 F.Supp. 644, 650, 653, 670 (N.D.Ohio 1995) (four separate areas); *United States v. American Color & Chem. Corp.*, 885 F.Supp. 111, 112-13 (M.D.Pa.1995) (after work commenced, contamination discovered throughout facility); *Northwestern Mutual Life Ins. Co. v. Atlantic Research Corp.*, 847 F.Supp. 389, 396 (E.D.Va.1994) (all quadrants).

305. The scope of a geographic facility is not limited by the fiction of property lines because releases and migration of hazardous substances do not respect man-made ownership lines. *See United States v. Rohm and Haas,* 2 F.3d 1265, 1279 (3d Cir.1993) ("A current owner of a facility may be liable under § 107 without regard to whether it is the sole owner or one of several owners."); *accord Southern Pac. Transp. Co. v. Voluntary Purchasing Groups, Inc.*, 1997 WL 457510, *8 (N.D.Tex. August 7, 1997); *Clear Lake Props.*, 959 F.Supp. at 768;*United States v. Shell Oil Co.*, 841 F.Supp. at 970; *Louisiana-Pacific Corp.*, 811 F.Supp. at 1431; *Stringfellow,* 661 F.Supp. at 1059; *see also Ohio v. EPA,* 997 F.2d at 1549.

306. EPA need not designate one facility per owner or otherwise prove that an owner owns an entire facility to establish liability under Section 107 of CERCLA. *Id.; Rohm and Haas,* 2 F.3d at 1268. CERCLA expressly contemplates that there can be more than one owner of a facility. *See* 42 U.S.C.

§ 9608(b)(4).Section 108(b)(4) dealing with financial responsibility states:

> Where a facility is owned or operated by more than one person, evidence of financial responsibility covering the facility may be established and maintained by one of the owners or operators, or, in consolidated form, by or on behalf of two or more owners or operators. When evidence of financial responsibility is established in a consolidated form, the proportional share of each participant shall be shown. The evidence shall be accompanied by a statement authorizing the applicant to act for and in behalf of each participant in submitting and maintaining the evidence of financial responsibility.

42 U.S.C. 9608(b)(4).

307. Courts do not necessarily defer to a defendant's suggestion as to the scope of a CERCLA facility, because a defendant will always define the facility narrowly to avoid liability. *See, e.g., Southern Pac. Transp. Co.,* 1997 WL 457510 at *4; *Clear Lake Props.,* 959 F.Supp. at 768; *Akzo Coatings,* 960 F.Supp. at 1359; *Louisiana-Pacific Corp.,* 811 F.Supp. at 1431; *Stringfellow,* 661 F.Supp. at 1059.

a. A defendant may argue, for example, that each specific drum is a facility (*i.e.,* a "storage container") rather than the landfill itself where drums were abandoned, with the intended result that the plaintiff be required to prove a release from a particular drum. *See, e.g., Louisiana-Pacific Corp.,* 811 F.Supp. at 1431 ("Beazer's theory [dividing facility] presumes a stricter causation analysis than this court has adopted."); *Akzo Coatings,* 960 F.Supp. at 1359 (rejecting suggestion that "every separate

instance of contamination, down to each separate barrel of hazardous waste, could feasibly be construed to constitute a separate CERCLA facility").

b. Narrowly defining the facility in this manner is nothing more than an attempt to impose a causation requirement that is inconsistent with the liability provisions of Section 107(a) and the causation based third party defense in Section 107(b). *Louisiana-Pacific Corp.*, 811 F.Supp. at 1431; *Pretty Prods.*, 780 F.Supp. at 1499 & n. 14; *see also Lincoln Props.*, 823 F.Supp. at 1536-37; *United States v. Fairchild Indus., Inc.*, 766 F.Supp. 405, 411 (D.Md.1991).

c. If anything, courts defer to a plaintiff's definition of the facility because the plaintiff is the master of its claim and should be allowed to allege or conceptualize the facility in any manner to suit liability, as long as the asserted definition falls within the very broad statutory definition. *See Louisiana-Pacific Corp.*, 811 F.Supp. at 1431 ("As the master of its complaint, Louisiana-Pacific has the discretion to formulate the legal theories [regarding the facility] on which it will base its claim."). This is particularly so because courts should apply the definition of "facility" expansively to further the remedial goals of CERCLA. *See California v. Blech*, 976 F.2d 525, 527 n. 1 (9th Cir.1992); *3550 Stevens Creek Assocs.*, 915 F.2d at 1360 n. 10.

A plaintiff's choice to define the "facility" is not without limits and a plaintiff could not allege that the entire country is a facility. *See Thomas v. FAG Bearings, Corp.*, 846 F.Supp. 1382, 1387 (W.D.Mo. 1994), *reconsideration granted on other grounds*,860 F.Supp. 663 (W.D.Mo.1994).

d. Other courts address this concern by examining the scope of the plaintiff's response actions to help define the appropriate scope of a geographic facility. *See United States v. Northeastern Pharm. & Chem. Co.,* 810 F.2d 726, 743 (8th Cir.1986), *cert. denied,*484 U.S. 848, 108 S.Ct. 146, 98 L.Ed.2d 102 (1987) (location where hazardous substances were disposed of and where government concentrated cleanup efforts was facility); *United States v. Ottati & Goss,* 694 F.Supp. 977, 984 (D.N.H.1988) (NPL listing of two sites for unified response action determined facility), *aff'd in part and vacated in part,*900 F.2d 429 (1st Cir.1990); *Akzo Coatings,* 960 F.Supp. at 1358-59 (noncontiguous areas were one facility because EPA treated them as such); *see also Nurad, Inc. v. William E. Hooper & Sons Co.,* 966 F.2d 837, 840-43 (4th Cir.1992) (state officials ordered closure of discrete area, which was limit of facility; uncontaminated parcels nearby operated by others not included in facility), *cert. denied,* 506 U.S. 940, 113 S.Ct. 377, 121 L.Ed.2d 288 (1992); *Atlantic Richfield Co. v. Current Controls, Inc.,* 1996 WL 528601 (W.D.N.Y. September 6, 1996) (noncontiguous tank farm near plant area was part of larger facility, if not a facility of its own, because it was part of an operable unit of cleanup defined by EPA); *City of Toledo v. Beazer Materials and Servs., Inc.,* 41 E.R.C. 1597, 1663 (N.D.Ohio 1995) (facility defined by scope of contamination and private party's remediation of its parcel).

308. A private party's decision regarding the geographic scope of response actions will be subject to judicial review based on whether the response actions are necessary. *See Town of New Windsor v. Tesa Truck, Inc.,* 935 F.Supp. 305, 309 (S.D.N.Y.1996); *City of Toledo,* 41 E.R.C. at 1663; *Acme Fill Corp. v.*

Althin CD Med., Inc., 1995 WL 597300 (N.D.Cal. August 22, 1995).

309. The EPA's decision to conduct a unified response action with respect to a particular geographic area, such as a plant area, consisting of non-contiguous patches of contamination, supports a finding that such a geographic area is a facility for liability purposes. *See United States v. Taylor*, 31 E.R.C. 1197, 1199 (M.D.N.C.1989).

a. The scope of a facility investigated by EPA may change as EPA's knowledge about the spread of the contamination increases. *United States v. Conservation Chem. Co.*, 619 F.Supp. 162, 184-85 (W.D.Mo. 1985) (facility includes every conceivable place where hazardous substances are located). Once sampling and investigation is complete, the scope of what is the facility may expand if investigation shows a greater spread of contaminants than originally anticipated. *See United States v. Colorado & Eastern R.R. Co.*, 50 F.3d 1530, 1533 (10th Cir.1995); *Washington State Dept. of Transp. v. EPA*, 917 F.2d 1309, 1311 (D.C. Cir.1990), *cert. denied*,501 U.S. 1230, 111 S.Ct. 2851, 115 L.Ed.2d 1019 (1991); *Eagle-Picher Indus., Inc. v. EPA*, 822 F.2d 132, 144 n. 59 (D.C.Cir.1987).

b. EPA's administrative decision to include or exclude property from a site designation is irrelevant to this liability determination. *See Kent County v. EPA*, 963 F.2d 391, 394 (D.C.Cir.1992).

310. Although at the outset of trial, an issue of fact was reserved as to whether the Railroad parcel and the B & B parcel are separate CERCLA facilities, the facts preponderate to establish that the Arvin plant is a single facility. B & B leased the contiguous Railroad parcel and operated the two parcels as a

single facility. B & B's operations released hazardous substances to the environment from and located throughout the facility, particularly in the form of contaminated groundwater.

311. The EPA investigated the subsurface of the facility as a whole and EPA's remedy is primarily directed at a plume of contaminated groundwater that underlies the facility. The plume poses an indivisible threat of leaching and diffusing contaminants to lower groundwater suitable for drinking.

312. EPA has consistently treated the plant as a single facility and has conducted a unified response action with respect to the entire facility. On October 4, 1989, EPA listed the 4.7 acre "Brown & Bryant, Inc. (Arvin Plant)" on the NPL. *See* 54 Fed.Reg. 41015, 41025 (October 4, 1989).

313. The entire Arvin plant (both parcels) falls within the express definition of a facility because it is a site (1) "where a hazardous substance has been deposited"; (2) "where a hazardous substance has been . . . stored"; (3) "where a hazardous substance has been . . . disposed of"; (4) "where a hazardous substance has been . . . placed"; (5) and/or "where a hazardous substance has . . . come to be located . . . ." 42 U.S.C. § 9601(9).

314. B & B's operation of the hazardous substances on the Arvin plant is a single CERCLA facility located at the plant (Site), with varying degrees of intensity of use and release of hazardous substances. The EPA has treated the plant (Site) as a unit for purposes of response actions, including listing the plant on the National Priorities List ("NPL").

315. The Railroads had full opportunity to legally challenge the NPL listing and designation of the site and elected not to do so. This is a knowing, voluntary and effective waiver of the right to contest the EPA's designation of both parcels as a single site.

F. *RELEASE / THREATENED RELEASE PRESENT*

316. CERCLA defines "release" to include "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment . . ."42 U.S.C. § 9601(22).

317. No party denies that numerous releases of hazardous substances occurred on their parcel during the time of B & B's operations on the leased Railroad parcel. The evidence overwhelmingly confirms these allegations.

318. Based on sampling and analysis conducted by both the Railroads and EPA, "hazardous substances," as defined pursuant to Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), including but not limited to, ethylene dibromide, DBCP, 1,2-dichloropropane, 1,3-dichloropropene, and dinoseb are present in the soil and groundwater at the Arvin Plant, including on the Railroad parcel. 40 C.F.R. § 302.4, Table.

319. The presence of these substances in the soils and groundwater on and around the Arvin Site prove that hazardous substances have been released at the facility. *See Lincoln Props. Ltd. v. Higgins,* 36 E.R.C. 1228, 1245 (E.D.Cal.1993); *Mid Valley Bank v. North Valley Bank,* 764 F.Supp. 1377, 1387 (E.D.Cal.1991); *United States v. Hardage,* 761 F.Supp. 1501, 1510 (W.D.Okla.1990); *United States v. Mottolo,* 695 F.Supp. 615, 623 (D.N.H.1988); *State of Washington*

v. Time Oil Co., 687 F.Supp. 529, 532 (W.D.Wash. 1988). The presence of an underground plume of contaminants emanating from the facility is further evidence that hazardous substances have been released from the facility. *See Artesian Water Co.*, 659 F.Supp. at 1282.

320. The contaminated groundwater under the facility (Site) poses a threat to further leaching and migration to the deeper groundwater underneath the facility and to the Arvin well. *See Dedham Water*, 889 F.2d at 1154. This is a "threatened release."

321. To establish liability, the United States need not prove every specific source of the contamination. *See Westfarm Ass'n*, 66 F.3d at 681; *Allied Princess Bay Co. No. 2 v. Atochem North America, Inc.*, 855 F.Supp. 595, 603-04 (E.D.N.Y.1993); *Lincoln Props.*, 823 F.Supp. at 1536-37; *Artesian Water Co.*, 659 F.Supp. at 1282; *see also O'Neil v. Picillo*, 883 F.2d 176, 178 (1st Cir.1989) (in cases of concurrent causation, CERCLA plaintiff does not need to prove different potential sources where each was a substantial factor; too difficult to trace source of contamination), *cert. denied*,493 U.S. 1071, 110 S.Ct. 1115, 107 L.Ed.2d 1022 (1990). *But see United States v. Dico, Inc.*, 136 F.3d 572 (8th Cir.1998).

a. Some courts impose an obligation to trace a source in "two site" cases. *See Memphis Zane May Assocs. v. IBC Mfg. Co.*, 952 F.Supp. 541 (W.D.Tenn. 1996); *Thomas*, 846 F.Supp. at 1387. Here, there is no owner of distant property that provides a subsurface connection. *See Thomas*, 846 F.Supp. at 1382 (not all courts require evidence that an actual release come from a distant property or that plaintiff respond to a perceived threat of release from a distant parcel);

see also Kalamazoo River Study Group v. Rockwell Int'l, 3 F.Supp.2d 815 (W.D.Mich. 1997).

b. When the evidence of upgradient contamination is clear, courts shift the burden to the upgradient defendant to disprove that contaminants reached the plaintiff's parcel from upgradient property. *See Westfarm Assocs.,* 66 F.3d at 681. *Thomas v. FAG Bearings Corp.* recognized that contaminants in the immediate vicinity of a parcel are presumed to have originated there. *See* 846 F.Supp. at 1398.

322. The "two site" cases have no application here because the two parcels making up the B & B plant are contiguous, were operated together, and the plume is unitary and well-defined. The Railroad parcel and B & B's parcel are not separated by five miles as in *Thomas. See Thomas,* 846 F.Supp. at 1398. The contaminants underlie the entire B & B parcel in the A-zone and threaten to move in the only direction they can, downward. EPA has concluded that there is no barrier to prevent this downward migration.

323. There has been a release of hazardous substances at the Arvin plant facility.

V. RAILROAD LIABILITY

A. *Railroads Owner Liability*

324. Two of the classes of responsible parties defined in Section 107(a) of CERCLA are (1) the current owner or operator of a facility and (2) the owner or operator at the time of disposal of a hazardous substance. *See* 42 U.S.C. § 9607(a)(1),(2).

a. The owner of a facility can be held jointly and severally liable for costs of responding to a release that occurred even if the owner was not responsible for the actual disposal. *See Hanna Mining Co.,* 882

F.2d 392, 395 (9th Cir.1989); *United States v. R.W. Meyer, Inc.*, 889 F.2d 1497, 1507 (6th Cir.1989), *cert. denied*,494 U.S. 1057, 110 S.Ct. 1527, 108 L.Ed.2d 767 (1990); *United States v. Monsanto Co.*, 858 F.2d 160, 168 (4th Cir.1988), *cert. denied*,490 U.S. 1106, 109 S.Ct. 3156, 104 L.Ed.2d 1019 (1989); *New York v. Shore Realty Corp.*, 759 F.2d 1032, 1043, 1044 (2d Cir.1985); *National R.R. Passenger Corp. v. N.Y. City Hous. Auth.*, 819 F.Supp. 1271, 1277 (S.D.N.Y.1993).

b. Although owners may not actually engage in disposal of hazardous substances, they are still deemed polluters for allowing ultrahazardous activity to occur on their property. *See Shore Realty Corp.*, 759 F.2d at 1051 (landowner responsible for maintenance of contaminated property, even though another party placed chemicals on property); *Farmland Indus., v. Colorado Eastern R.R. Co.*, 944 F.Supp. 1492, 1498 (D.Colo.1996); *Sterling v. Velsicol Chem. Corp.*, 647 F.Supp. 303, 317 (W.D.Tenn.1986), *aff'd in part and rev'd in part on other grounds*,855 F.2d 1188 (6th Cir.1988) (owner of property with hazardous waste answerable for escape); *State Dept. of Envtl. Prot. v. Ventron Corp.*, 94 N.J. 473, 468 A.2d 150, 157 (1983) (handling of toxic waste abnormally dangerous as a matter of law; "[I]t is time to recognize expressly that the law of liability has evolved so that a landowner is strictly liable to others for harm caused by toxic wastes that are stored on his property and flow onto the property of others.").

c. Courts recognize that Congress did not limit CERCLA liability only to the entity that actually disposed of the contaminant. *See Joslyn Mfg.*, 40 F.3d at 762;Shore Realty Corp., 759 F.2d at 1044 n. 14; *see also Ninth Avenue Remedial Group*, 946 F.Supp. at 663.

d. Owner liability ensures that at least some entity other than the taxpayers will be potentially available, in the first instance, to redress the environmental harm associated with the property. *See Joslyn Mfg.*, 40 F.3d at 762; *Foster v. United States,* 922 F.Supp. 642, 657 (D.D.C.1996); *Clear Lake Props. v. Rockwell Int'l Corp.*, 959 F.Supp. 763, 768 (S.D. Tex.1997); *The Ninth Avenue Remedial Group,* 946 F.Supp. at 654; *United States v. Shell Oil Co.*, 841 F.Supp. 962, 968 (C.D.Cal.1993); *Lincoln Props.*, 823 F.Supp. at 1537.

325. An owner should not be allowed to reap the benefit of a government funded cleanup on the grounds that its tenant caused all the pollution. *See Farmland Indus.*, 944 F.Supp. at 1498; *see also Weyerhaeuser Co. v. Koppers Co.*, 771 F.Supp. 1420, 1426-27 (D.Md.1991) (lessor allocated 40% share of liability for contamination at lessee's wood treatment facility); *BCW Assocs. v. Occidental Chem. Corp.*, 1988 WL 102641, *11 (E.D.Pa.1988) (owner of warehouse allocated one-third liability where benefitted financially from increase in value of remediated warehouse).

326. In this case, the EPA listed the B & B (Arvin) Plant on the National Priorities List as a single facility. The Railroads were aware of the NPL listing process and knew that their property was listed as part of the facility. The Railroads did not appeal the EPA's rule-making to the United States Court of Appeals for the District of Columbia Circuit within 90 days of the listing.

327. The Railroads as owners of one part of the Site are strictly liable for release of hazardous waste on the Railroad parcel and for the hazardous substances that have come to be located at the Site.

328. The Railroads own approximately 19.1% of the entire Site. The Railroad parcel was actively operated for 13 years of the entire 28 years that B & B operated the Site. A plume of contaminated groundwater in the A-zone currently is located under the facility, some of it under the Railroad parcel. The plume threatens to migrate to lower layers of drinking water in the B-zone. The threat of downward migration is a threat of release. *See United States v. CDMG Realty Co.*, 96 F.3d 706, 714 (3d Cir.1996) (CERCLA "release" includes leaching by groundwater movement).

329. There was substantial disagreement among the experts whether a specific amount of contribution of hazardous substances from the Railroad parcel, occurred so as to cause response costs. Under CERCLA strict liability principles, proof of causation is not required where hazardous substances were stored on and released from the Railroad parcel, which is an integral part of the Site.

330. The Railroads are strictly liable under CERCLA as an "owner . . . of . . . a facility . . . from which there is . . . a release or threatened release which causes the incurrence of response costs ..." 42 U.S.C. § 9607(a).

331. Not all of the Railroad parcel was used for hazardous substance releasing activities nor was the entirety of the B & B parcel so used. The volume of the hazardous substance releasing activities on the B & B site is at least ten times greater than any Railroad parcel releases.

B. *Third-Party Defense*

332. CERCLA liability under Section 107(a) is "subject only to the defenses set forth in subsection

(b) of this section . . . ."42 U.S.C. § 9607(a); *see Town of Munster v. Sherwin-Williams Co., Inc.*, 27 F.3d 1268, 1271 (7th Cir.1994); *Velsicol Chemical Co.*, 9 F.3d at 530. Subsection (b) lists four statutory defenses to CERCLA liability. *See* 42 U.S.C. § 9607(b); *Bedford Affiliates v. Sills*, 156 F.3d 416, 426 (2d Cir.1998); *United States v. Monsanto Co.*, 858 F.2d 160, 170 (4th Cir.1988), *cert. denied*,490 U.S. 1106, 109 S.Ct. 3156, 104 L.Ed.2d 1019 (1989).

a. CERCLA's defenses are narrowly construed to effectuate the statute's broad remedial purposes. *See Idaho v. Hanna Mining Co.*, 882 F.2d 392, 396 (9th Cir.1989); *Lincoln Props.*, 823 F.Supp. at 1539; *Kelley v. Thomas Solvent Co.*, 727 F.Supp. 1532, 1540 (W.D.Mich.1989).

b. No equitable defenses exist; subsection (b) establishes "the universe of defenses to section 107 liability."*General Elec. Co. v. Litton Indus. Automation Sys., Inc.*, 920 F.2d 1415, 1418 (8th Cir.1990), *cert. denied*,499 U.S. 937, 111 S.Ct. 1390, 113 L.Ed.2d 446 (1991); *see*42 U.S.C. S 9607(b). Subsection (b) states:

There shall be no liability under subsection (a) of this section for a person otherwise liable who can establish by a preponderance of the evidence that the release or threat of release of a hazardous substance and the damages resulting therefrom were caused solely by—

(1) an act of God;

(2) and [sic] act of war;

(3) an act or omission of a third party other than an employee or agent of the defendant, or than one whose act or omission occurs in connection

with a contractual relationship, existing directly or indirectly, with the defendant . . ., if the defendant establishes by a preponderance of the evidence that (a) he exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous substance, in light of all relevant facts and circumstances, and (b) he took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions; or

(4) any combination of the foregoing paragraphs.

333. No evidence exists to support the "act of God" or "act of war" defenses. 42 U.S.C. § 9607(b)(1)(2).

334. To establish a third party defense, the defendants (Railroads) must show by a preponderance of the evidence that the release or threatened release was caused solely by an unrelated third party; the defendants bear the burden of proof. *See Foster v. United States,* 922 F.Supp. 642, 653-54 (D.D.C.1996); *United States v. Stringfellow,* 661 F.Supp. 1053, 1061 (C.D.Cal.1987) (third-party defense applies "only where a totally unrelated third party is the sole cause of the release or threatened release of a hazardous substance"); *O'Neil v. Picillo,* 682 F.Supp. 706, 728 (D.R.I.1988) ("third-party defense 'essentially serve[s] to shift the burden of proof of causation to the defendants'") (quoting *Violet v. Picillo,* 648 F.Supp. 1283, 1293 (D.R.I.1986), *aff'd,*883 F.2d 176 (1st Cir.1989), *cert. denied,*493 U.S. 1071, 110 S.Ct. 1115, 107 L.Ed.2d 1022 (1990); *United States v. A & N Cleaners and Launderers, Inc.,* 854 F.Supp. 229, 239 (S.D.N.Y.1994), *overruled on other grounds by Commander Oil Corp. v. Barlo Equip. Corp.,* 215 F.3d

321 (2d Cir.2000) (citing various cases); *Chatham Steel Corp. v. Brown,* 858 F.Supp. 1130, 1154-55 (N.D.Fla.1994).

a. Once the defendants show that the release or threatened release was caused solely by an unrelated third party, the defendants must show that the exercise of "due care" with respect to the hazardous substances on the property and "took precautions against the foreseeable acts or omissions of [the] third party and the consequences that could foreseeably result from such acts or omissions." 42 U.S.C. § 9607(3)(a)(b).

b. A defendant bears the burden of proving each element of the third party defense. *See Foster v. United States,* 922 F.Supp. 642, 653-54 (D.D.C.1996); *A & N Cleaners,* 854 F.Supp. at 239;*Chatham Steel Corp.,* 858 F.Supp. at 1154-55. A defendant's failure to meet its burden on any one of the required elements precludes application of the defense. *See In re Sterling Steel Treating, Inc.,* 94 B.R. at 929.

335. "Due care" requires a defendant to "demonstrate that it took necessary steps to prevent foreseeable adverse consequences arising from the pollution on the site." *A & N Cleaners,* 854 F.Supp. at 238,*overruled on other grounds by Commander Oil Corp.,* 215 F.3d 321; *see also Kerr-McGee Chem. Corp. v. Lefton Iron and Metal Co.,* 14 F.3d 321, 325 n. 3 (7th Cir.1994) (due care not established when potentially responsible party took no affirmative measures to clean site); *United States v. DiBiase Salem Realty Trust,* No. 91-11028-MA, slip op. at 15 (D.Mass. Nov. 19, 1993) (CERCLA's affirmative defenses not available when defendant took no steps to prevent harm from hazardous substances); *Lincoln Props.,* 823 F.Supp. at 1543 (defendant exercised due care by

taking contaminated wells out of service and destroying them in manner intended to prevent further contamination); *In re Sterling Steel Treating, Inc.*, 94 B.R. 924, 930 (Bankr.E.D.Mich.1989) (defendant exercised due care after discovering hazardous waste on property when it took immediate steps to properly dispose of waste).

336. The precautionary requirement is satisfied by taking precautionary action against the foreseeable actions of third parties responsible for the hazardous substances in question. *See Monsanto,* 858 F.2d at 169;*A & N Cleaners,* 854 F.Supp. at 239,*overruled on other grounds by Commander Oil Corp.,* 215 F.3d 321.

337. The evidence shows no action by the Railroads, during site operations, to prevent foreseeable adverse consequences by its lessee, B & B.

338. "[T]his [third-party] defense is unavailable if the third party had a direct or indirect contractual relationship with the owner, and the contamination occurred in the course of that relationship." *Bedford Affiliates,* 156 F.3d at 425; *see also* 42 U.S.C. § 9607(b)(3). "The term 'contractual relationship' . . . includes, but is not limited to, land contracts, deeds or other instruments transferring title or possession . . ."42 U.S.C. § 9601(35)(A); *see also A & N Cleaners,* 854 F.Supp. at 1326-28 (holding that lease constitutes "contractual relationship" under CERCLA and that determinant factor in establishing such a relationship is flow of benefits or obligations between parties), *overruled on other grounds by Commander Oil Corp.,* 215 F.3d 321. Here, B & B had a direct contractual (lease) relationship with the Railroads.

339. An act or omission of a third party occurs "in connection with" a lease if the contamination of the leased property resulted during the course of the lease from activities of the lessee. *See Bedford Affiliates,* 156 F.3d at 425;*Monsanto,* 858 F.2d at 169; *Briggs & Stratton Corp. v. Concrete Sales & Servs.,* 20 F.Supp.2d 1356, 1367 (M.D.Ga.1998); *Johnson County Airport Comn. v. Parsonitt Co.,* 916 F.Supp. 1090, 1094 n. 5 (D.Kan.1996); *North Carolina v. W.R. Peele Sr. Trust,* 876 F.Supp. 733, 745 (E.D.N.C.1995), *clarification denied,*889 F.Supp. 849 (E.D.N.C.1995); *A & N Cleaners,* 788 F.Supp. at 1334,*overruled on other grounds by Commander Oil Corp.,* 215 F.3d 321;*International Clinical Labs., Inc. v. Stevens,* 710 F.Supp. 466, 470-71 (E.D.N.Y.1989).

340. The phrase "in connection with" connotes a requirement that the lease be "relate[d] to the hazardous substances."*See Westwood Pharms. v. National Fuel Gas Distrib. Corp.,* 964 F.2d 85, 89 (2d Cir.1992) ("[A] landowner is precluded from raising the third-party defense only if the contract between the landowner and the third party somehow is connected with the handling of hazardous substances."); *Reichhold Chems., Inc. v. Textron, Inc.,* 888 F.Supp. 1116, 1129 (N.D.Fla.1995); *Lincoln Props.,* 823 F.Supp. at 1539; *United States v. A & N Cleaners and Launderers, Inc.,* 788 F.Supp. 1317, 1335 (S.D.N.Y.1992); *Thomas Solvent Co.,* 727 F.Supp. at 1540; *Shapiro v. Alexanderson,* 743 F.Supp. 268, 271 (S.D.N.Y.1990).

C. *Third Party Defense is Inapplicable*

341. A "contractual relationship" between the Railroads and B & B existed. In 1975, B & B leased the Railroad 0.9 acre parcel of land adjacent to B & B's 4.7 acres parcel of land. The exclusive purpose of

the lease was for parking "fertilizer rigs," which often contained chemicals, weed killer or fertilizer, to be applied to farmland or other real property.

342. Before the 1975 lease, the Railroads and B & B entered into a rail spur agreement in 1960, which allowed B & B to construct and use a rail spur along the B & B warehouse, adjacent to the Railroad parcel.

343. Throughout its operation of the Arvin Plant until 1989, B & B's facility operations under the lease released and, or threatened release of hazardous substances on the Site, which includes releases on the leased Railroad parcel. The presence of hazardous substances on the Railroad parcel, some of which were released to the environment, at a minimum, caused the need for a CERCLA investigation, characterization and analysis of that parcel as part of the overall Site.

344. Rains and other water applied to the Site, which was engineered to drain to a sump and waste pond, facilitated the percolation of hazardous substances to subterranean soil and groundwater underlying the site.

345. Fertilizer rigs containing hazardous substances were constantly washed out and rinsed onto the property, releasing hazardous substances. Spills during loading and unloading of chemicals were continuous at the site and percolated through the soil to the groundwater.

346. The Railroads periodically inspected B & B's plant and had actual knowledge that B & B was in the business of formulating, mixing, storing and distributing agricultural chemicals and that B & B used the leased parcel to store chemicals where leaks

would often occur. In 1984, the Railroads required B & B to execute a supplemental agreement containing an environmental indemnity for the Site. The agreement required B & B to periodically furnish the Railroad with "satisfactory proof" that B & B was in compliance with all laws concerning hazardous waste storage and disposal. B & B agreed to indemnify the Railroads.

347. The third party defense is not available because B & B "had a direct or indirect contractual relationship with the owner, [the Railroads,] and the contamination occurred in the course of that relationship." *Bedford Affiliates,* 156 F.3d at 425; *see also* 42 U.S.C. § 9607(b)(3).

348. The Railroads have failed to show that they acted with due care with respect to the hazardous substances on the property, or took any precautionary actions against the foreseeable results of B & B's activities in storing and handling hazardous ag chemicals on the Railroad parcel. Other than modifying the lease to include an indemnity provision, the Railroads submitted no evidence that they took any action to prevent or mitigate their lessee's conduct on the Site, which ignored the hazards of continuous spills, releases and reckless practices in the unloading, storage, formulating and loading of toxic ag-chemicals. The evidence at trial showed B & B was a "sloppy" operator that took no meaningful steps to control the release of agricultural chemicals to the environment during the regular course of B & B's operations. The party-defense is not established by virtue of the Railroad's failure to take any meaningful action to correct B & B's hazardous on-Site activities in the delivery-receipt, storage, and conduct of its ag-chem application business.

349. The Railroads argue the third-party defense applies to releases originating from the B & B parcel, not the Railroad parcel leased to B & B. *See* Doc. 1321, 29:1-9 ("Railroad response to Governments' Proposed Findings of Fact and Conclusions of Law"). The Railroad argument is misplaced.

350. "The trigger to liability under § 9607(a)(2) is ownership or operation of a facility at the time of a disposal, not culpability or responsibility for the contamination." *Carson Harbor Village, Ltd. v. Unocal Corp.*, 227 F.3d 1196, 1207 (9th Cir.2000). CERCLA liability arises when there has been a release or a threatened release of a hazardous substance at *a facility*. *See B.F. Goodrich v. Murtha*, 958 F.2d 1192, 1201 (2d Cir.1992). Causation is a peripheral issue under CERCLA. *See Reichhold Chems., Inc.*, 888 F.Supp. 1116, 1128 (N.D.Fla.1995); *United States v. DiBiase Salem Realty Trust*, 1993 WL 729662, *4 (D.Mass. Nov.19, 1993). "The plaintiff is not required to link the defendant's conduct or the defendant's waste firmly to the release or threat of release." *See Reichhold Chems.*, 888 F.Supp. at 1129. "The release or threat of release need only have emanated from a facility which [defendant] owned." *Dedham Water Co. v. Cumberland Farms Dairy, Inc.*, 889 F.2d 1146, 1153 (1st Cir.1989).

351. The Railroads are "owners" of *part* of the Arvin "facility," a single CERCLA Site, which encompasses both B & B's property as well as their real property leased to B & B.

352. Although potentially unfair, CERCLA liability makes no distinctions between lines of property ownership. The scope of a geographic facility is not limited by the fiction of property lines because releases and migration of hazardous substances do not

respect man-made ownership lines. *See United States v. Rohm and Haas,* 2 F.3d 1265, 1279 (3d Cir.1993); *accord Southern Pacific Trans. Co. v. Voluntary Purchasing Groups, Inc.,* 1997 WL 457510, *8 (N.D.Tex. Aug. 7, 1997); *Clear Lake Props.,* 959 F.Supp. at 768; *United States v. Shell Oil Co.,* 841 F.Supp. at 970; *Louisiana-Pacific Corp.,* 811 F.Supp. at 1431; *Stringfellow,* 661 F.Supp. at 1059; *Ohio v. U.S. EPA,* 997 F.2d at 1549.

353. Limiting the definition of a facility to property lines, is inconsistent with the liability provisions of CERCLA Section 107(a) and the causation based third party defense in Section 107(b). *See Louisiana-Pacific Corp.,* 811 F.Supp. at 1431; *Pretty Products,* 780 F.Supp. at 1499; *Lincoln Props.,* 823 F.Supp. at 1536-37.

CERCLA Section 107(a) states in pertinent part:

> Notwithstanding any other provision or rule of law, and subject only to the defenses set forth in subsection (b) of this section-(1) the owner . . . of . . . a facility, . . . from which there is a release, or a threatened release which causes the incurrence or response costs, of a hazardous substance shall be liable . . . .
>
> The Railroads' concerns are more appropriately addressed in the harm (apportionment) stage; they do not affect liability.

354. The Railroads are strictly liable for the hazardous substances originating from the "Railroad parcel" that in part caused the need for CERCLA response of the Site. No third-party defense is available to the Railroads under 42 U.S.C. § 9607(b) by virtue of their lease with B & B.

VI. SHELL OIL COMPANY LIABILITY

A. *Operator Liability*

355. Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(1), imposes liability on "the owner and operator of a . . . facility . . . from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance . . . ." Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2), also imposes liability on "any person who at the time of disposal of any hazardous substance . . . operated any facility at which such hazardous substances were disposed of . . . from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance . . . ."

356. Section 101(20)(A)(ii) of CERCLA, 42 U.S.C. § 9601(20)(A) (ii) defines the terms "owner or operator" as "in the case of an onshore facility or an offshore facility, any person owning or operating such facility." Because the statute's tautological definition is unhelpful, the terms are ascribed "their ordinary meanings rather than unusual or technical meanings." *Edward Hines Lumber Co. v. Vulcan Materials Co.*, 861 F.2d 155, 156 (7th Cir.1988) ("The definition of 'owner or operator' . . . must come from a source other than the text. The circularity strongly implies, however, that the statutory terms have their ordinary meanings rather than unusual or technical meanings."); *United States v. Bestfoods*, 524 U.S. 51, 118 S.Ct. 1876, 141 L.Ed.2d 43 (1998).

357. Some courts have resorted to dictionary definitions of the term "operate," *see East Bay Mun. Utility Dist. v. United States Dep't of Commerce*, 142 F.3d 479, 484 (D.C.Cir.1998) (term "operate" means

to "direct the working of; to manage, conduct, work (a railway, business, etc.)," or "to manage and put or keep in operation whether with personal effort or not."(*quoting* The Oxford English Dictionary (2d ed.1989) and Webster's Third New International Dictionary (1967)); *United States v. Gurley,* 43 F.3d 1188, 1193 (8th Cir.1994) ("to operate" means to "bring about by or as if by the exertion of positive effort or influence."), *cert. denied,*516 U.S. 817, 116 S.Ct. 73, 133 L.Ed.2d 33 (1995). Courts, however, must also construe CERCLA's statutory terms in light of CERCLA's broad remedial goals. *See Florida Power & Light Co. v. Allis Chalmers Corp.,* 893 F.2d 1313, 1317 (11th Cir.1990); *3550 Stevens Creek Assocs. v. Barclays Bank of California,* 915 F.2d 1355, 1360 n. 10 (9th Cir.1989), *cert. denied,* 500 U.S. 917, 111 S.Ct. 2014, 114 L.Ed.2d 101 (1991).

358. "For one to be considered an operator, then, there must be some nexus between that person's or entity's control and the hazardous waste contained in the facility."*Geraghty and Miller, Inc. v. Conoco Inc.,* 234 F.3d 917, 928 (5th Cir.2000). This nexus has been described as the "well-settled rule . . . that 'operator' liability under section 9607(a)(2) only attaches if the defendant had authority to control the cause of the contamination at the time the hazardous substances were released into the environment." *Kaiser Aluminum & Chem. Corp. v. Catellus Dev. Corp.,* 976 F.2d 1338, 1341 (9th Cir.1992), *citing Nurad, Inc. v. Hooper & Sons Co.,* 966 F.2d 837, 842 (4th Cir.1992) (the authority to control the source of the contamination "is the definition of 'operator' that most courts have adopted"); *CPC Int'l, Inc. v. Aerojet-General Corp.,* 731 F.Supp. 783, 788 (W.D.Mich.1989) ("The most commonly adopted yardstick for determining whether a party is an owner-operator under

CERCLA is the degree of control that party is able to exert over the activity causing the pollution."); *Conoco,* 234 F.3d at 928;*accord Hines,* 861 F.2d 155 (contractor not liable as an "operator" because, although he designed and built the wood treatment plant, he had no authority to control the day-to-day operation of the plant after it was built; and it was during the operation of the plant that the hazardous materials were released).

359. *Long Beach Unified Sch. Dist. v. Godwin Living Trust,* holds that "to be an operator of a hazardous waste facility, a party must do more than stand by and fail to prevent the contamination. It must play an active role in running the facility, typically involving hands-on day-to-day participation in the facility's management."32 F.3d 1364, 1366 (9th Cir.1994); *compare United States v. Gurley,* 43 F.3d 1188 (8th Cir.1994), *cert. denied,*516 U.S. 817, 116 S.Ct. 73, 133 L.Ed.2d 33 (1995) (under "preventative" theory, "operator" liability may be found where party held authority to control, whether or not it was actually exercised).

360. "The overwhelming weight of case authority establishes that in order to hold a 'person' liable as an operator the person must have participated in the day-to-day or operational management of the facility." *Acme Fill Corp. v. Althin CD Med., Inc.,* 1995 WL 597300 at *7 (N.D.Cal. Aug.22, 1995); *see also United States v. New Castle County,* 727 F.Supp. 854, 870 (D.Del.1989); *United States v. Dart Indus., Inc.,* 847 F.2d 144 (4th Cir.1988); *United States v. DiBiase,* 1993 WL 729662 at *6 (D.Mass. Nov.19, 1993), *aff'd,*45 F.3d 541 (1st Cir.1995) (an "operator" is defined as "one having active involvement in and control over the operations of a facility."); *United*

States v. Cordova Chem. Co. of Mich., 113 F.3d 572, 579-81 (6th Cir.1997); *Redwing Carriers, Inc. v. Saraland Apartments*, 94 F.3d 1489, 1504-05 (11th Cir.1996); *Schiavone*, 79 F.3d 248, 253-54 (2d Cir.1996); *United States v. Gurley*, 43 F.3d 1188, 1193 (8th Cir.1994); *John S. Boyd Co., Inc. v. Boston Gas Co.*, 992 F.2d 401, 408 (1st Cir.1993); *Lansford-Coaldale Joint Water Auth. v. Tonolli Corp.*, 4 F.3d 1209, 1220-22 (3d Cir.1993); *Joslyn Manuf. Co. v. T.L. James & Co., Inc.*, 893 F.2d 80, 83 (5th Cir.1990); *Hines Lumber Co.*, 861 F.2d at 157-59 (7th Cir.1988).

361. *United States v. Bestfoods*, addresses CERCLA "operator" liability:

> [U]nder CERCLA, an operator is simply someone who directs the workings of, manages, or conducts the affairs of a facility. To sharpen the definition for purposes of CERCLA's concern with environmental contamination, an operator must manage, direct, or conduct operations specifically related to pollution, that is, operations having to do with the leakage or disposal of hazardous waste, or decisions about compliance with environmental regulations.

524 U.S. at 66-67. The phrase "to operate" means "something more than mere mechanical activation of pumps and valves, and must be read to contemplate 'operation' as including the exercise of direction over the facility's activities." *Id.* at 71.

Although *Bestfoods* was decided in the context of whether a parent corporation could be held directly liable for its management and direction of a subsidiary's facility under CERCLA, "operator" liability may be applied to any CERCLA context, "whether

the defendant is acting in a corporate, governmental, or any other capacity." *United States v. Township of Brighton,* 153 F.3d 307, 314 n. 7 (6th Cir.1998).

362. Although the Ninth Circuit has not dealt with CERCLA "operator" liability in light of the Supreme Court's *Bestfoods* decision, the Fifth Circuit's holding in *Township of Brighton* is instructive:

> We hold, therefore, that an "actual control" test applies not just in the corporate context, but in the present one as well. Before one can be considered an 'operator' for CERCLA purposes, one must perform affirmative acts. The failure to act, even when coupled with the ability or authority to do so, cannot make an entity into an operator . . . . *After* it is established that a defendant is an operator, however, a defendant is just as responsible for hazardous conditions caused by its neglect and omissions as it is for those caused by its affirmative acts.

153 F.3d at 314-15 (emphasis in original).

363. Indicia of operator liability include: defendant's expertise and knowledge of the environmental dangers posed by hazardous waste; establishment and design of the facility; participation in the opening and closing of a facility; hiring or supervision of employees involved in activities related to pollution; determination the facility's operational plan; monitoring of and control over hazardous waste disposal; and public declarations of responsibility over the facility and/or its hazardous waste disposal. *See id.* at 317 (citing *United States v. Stringfellow,* 20 Envtl. L. Rep. 20656, 20658 (C.D.Cal. Jan. 9, 1990) (citing *Rockwell Int'l Corp. v. IU Int'l Corp.,* 702 F.Supp. 1384, 1390-91 (N.D.Ill.1988))).

B. *Shell is Not an Operator*

364. Shell Oil Company cannot be held liable as an "operator" under CERCLA without exercising actual control over B & B's operations. The inquiry in this case is complicated by the fact that Shell had some "control" in dictating the terms under which D-D was delivered and unloaded by tanker at the Site. There is no question that the D-D delivery process caused hazardous releases at the Site. B & B directed the workings of, managed, and conducted the daily operations at the Arvin Site, which included receiving, storing, formulation, loading and application of Shell chemicals. Shell did not participate in the day-to-day operations of the Arvin facility or act in a managerial capacity for the plant's operations. Shell did not hire or supervise B & B's employees involved in pollution causing activities and did not open, close, or exercise direction over the facility's storage and sale activities. Shell had the ability to affect delivery and unloading, but did not do so in so active a way as to assume actual control of the processes.

365. Shell did arrange for the sale and delivery of its agricultural chemicals (hazardous substances) to the Arvin facility, and though its contractors, common carriers, participated and provided some direction over the loading-unloading of its D-D product, a process where spills were inherent, B & B managed, directed, and conducted operations specifically related to pollution; i.e. operations having to do with the loading, unloading, spilling, storing, leakage or disposal of hazardous waste. B & B made the decisions about compliance with environmental regulations at the Arvin facility, including whether to follow and comply with technical requirements pro-

vided by Shell, starting around 1979, for handling and storage of Shell chemicals.

366. B & B decided to continue as a Shell distributor, chose to store Shell D-D in a bulk storage tank at the Arvin Site, regularly replaced storage tanks every 4-6 years, and chose not to use teflon seals and special chemical hoses in the late 1960s. B & B made an independent decision that most of its fertilizer rigs would be washed out on or adjacent to unprotected soil, and designed the Site drainage of the residue to wash downgradient into the Site's waste sump at the southeast corner of the property. B & B was responsible for the replacement of leaky sight gauges, hoses, and filters for each rig; and determined how and where to store chemicals and fertilizers. B & B made all decisions about compliance with State and Federal environmental regulations, and determined which precautionary procedures would be implemented.

367. The fact that Shell, in an effort to be environmentally responsible, provided B & B with technical environmental information about its products, engineering information and specifications, as well as information regarding safe storage and handling practices is insufficient for operator liability to attach to such activities standing alone. "[T]he imposition of liability upon a manufacturer on account of its dissemination of safety-related information is anathematic, even to the broad and salutary remedial purposes of CERCLA." *Jordan v. Southern Wood Piedmont Co., ITT,* 805 F.Supp. 1575, 1580 (S.D.Ga.1992) (chemical manufacturer recommended disposal procedure to wood treatment facility to dispose of the hazardous substance in compliance with the Occupational Safety and Health Administra-

tion ("OSHA"), *see* 29 C.F.R. § 1900.1200; a disposal method for leaks or spills, invited inquiries from anyone experiencing chemical problems with which it had expertise, and provided several tests and surveys). Shell's information was provided for B & B's assistance to improve B & B's environmental protective practices in its handling of Shell's products.

368. Shell's "Bulk Facilities Improvement Allowance" program does not create operator liability under CERCLA. The program was voluntary. There is no evidence Shell enforced the program by withholding products from non-complying buyers. B & B owned the improvements made to its safety and storage facilities. There was no requirement that B & B submit to inspection as part of the Bulk Facilities Improvement program. Shell's employee, Mr. Patrick, who inspected the Arvin facility on September 10, 1981, was "absolutely not" managing B & B's operations. *See* ¶ 125. Although several recommendations were made by Shell to B & B as a result of the inspection, there is no evidence B & B took any specific action in response to the inspector's recommendations other than putting a dike enclosure around the D-D tank installed in 1981. B & B could pick and choose what suggestions and recommendations may have been made by Shell.

369. Shell's bargaining power as a supplier of popularly-used pesticides is insufficient to support operator liability. The "mere ability to exercise control as a result of [the market appeal of a product or] the financial relationship of the parties is insufficient for liability to attach. The entity must actually exercise control." *United States v. Consolidated Rail Corp.*, 729 F.Supp. 1461, 1468 (D.Del.1990); see *also Rockwell Int'l Corp.*, 702 F.Supp. at 1390. "[T]he

mere existence of economic bargaining power to impose certain terms and conditions on another, does not itself create an obligation under CERCLA." *General Elec. Co. v. AAMCO Transmissions, Inc.*, 962 F.2d 281, 286 (2d Cir.1992) (emphasis in original); *New York v. General Elec. Co.*, 592 F.Supp. 291, 297 (N.D.N.Y.1984). Shell did not assume a position of authority to manage or direct B & B to comply with environmental laws and regulations. Shell did not participate in the day-to-day operational management of the facility.

370. Contrary to the Governments' assertions, *Bestfoods, Township of Brighton,* 153 F.3d at 316 and *United States v. Anthony Dell'Aquilla Enter. and Subsidiaries,* 150 F.3d 329, 334 (3d Cir.1998), do not stand "for the proposition that entities who direct decisions about compliance with environmental regulations can be held liable as operators of a facility [.]"*Bestfoods* makes clear that "under CERCLA, an operator is simply someone who directs the workings of, manages, or conducts the affairs of a facility."524 U.S. at 66-67. An operator must "manage, direct, or conduct operations specifically related to pollution . . . or decisions about compliance with environmental regulations"; the bedrock of liability is control over the operation of a CERCLA defined "facility." Shell did not operate the site. Its activities at most covered shipping and receiving D-D to the Arvin plant by common carrier as a precursor to bulk storage of its product, D-D. *See* 42 U.S.C. § 9607(a)(1)(2) ("operator" liability attaches for a "facility"); *Bestfoods,* 524 U.S. at 66-67.

371. In *Township of Brighton* a township operated a dump pursuant to an agreement with the owner of the dump property, which required the dump to

"meet the specifications of and be under the supervision of the [township's] Board of Appeals." 153 F.3d at 310. Here, B & B was not required to submit to the Shell inspection; participation in Shell's "Bulk Facilities Improvement Allowance" program was entirely *voluntary*. *Anthony Dell'Aquilla Enterprises* is not a CERCLA case; it arose under the Clean Air Act, 42 U.S.C. § 7401 *et seq.* The contractor's liability as an "operator" under the Clean Air Act was established through its direct control and supervision over demolition and project development activities at a site. *See Anthony Dell'Aquilla Enterprises,* 150 F.3d 330.Shell did not have the authority to directly control and supervise the operations of the B & B Facility; Shell could only suggest or recommend as to handling and storage of its product.

372. The Governments' claim that operator liability may be based on a "specific process such as the unloading of liquid product" at a CERCLA defined "facility" is unsupported. *See* 42 U.S.C. § 9607(a)(1)(2) ("operator" liability attaches for a "facility"); *Bestfoods,* 524 U.S. at 66-67 (operator liability may only attach where someone "directs the workings of, manages, or conducts the affairs of a facility."). Directing the specific process of unloading of a hazardous substance is insufficient for operator liability to attach.

D. *Arranger Liability*

373. Section 107(a) of CERCLA provides that:

> any person who by contract, agreement, or otherwise arranged for disposal . . . of hazardous substances owned or possessed by such person . . . at any facility . . . owned or operated by another party or entity and containing such hazardous substances . . ., from which there is a release, or

> a threatened release which causes the incurrence of response costs, of a hazardous substance . . . shall be liable . . . .

Congress used broad language in providing for liability for persons who "by contract, agreement, or otherwise arranged for" the disposal of hazardous substances. *See A & F Materials,* 582 F.Supp. at 845.

374. CERCLA does not define the phrase "arranged for." *See Amcast Indus. Corp. v. Detrex Corp.,* 2 F.3d 746, 751 (7th Cir.1993); *United States v. Aceto Agr. Chem. Corp.,* 872 F.2d 1373, 1379 (8th Cir.1989). While the legislative history of CERCLA sheds little light on the intended meaning of this phrase, courts have concluded that a liberal judicial interpretation is consistent with CERCLA's "overwhelmingly remedial" statutory scheme. *See NEPACCO,* 810 F.2d at 733; *Dedham Water Co.,* 805 F.2d at 1081; *Conservation Chem. Co.,* 619 F.Supp. at 192;*United States v. Mottolo,* 605 F.Supp. 898, 902 (D.N.H.1985).

375. The Ninth Circuit emphasizes the need to construe CERCLA's liability provisions broadly:

> Because CERCLA is essentially a remedial statute designed by Congress to protect and preserve public health and the environment, [courts] are . . . obligated to construe its provisions liberally to avoid the frustration of the beneficial legislated purposes . . . "in the absence of a specific congressional intent otherwise."

Wilshire Westwood Ass'n v. Atlantic Richfield, 881 F.2d 801, 804 (9th Cir.1989); *see also Wickland Oil Terminals v. Asarco,* 792 F.2d 887 (9th Cir.1986).

376. The term "liable" is construed "to be the standard of liability which obtains under Section

1321 of Title 33 [of the Clean Water Act]," which is strict liability. *State of New York v. Shore Realty Corp.*, 759 F.2d 1032, 1042 (2d Cir.1985); *see also* 42 U.S.C. § 9601(33); *United States v. R.W. Meyer, Inc.*, 889 F.2d 1497, 1507 (6th Cir.1989), *cert. denied*,494 U.S. 1057, 110 S.Ct. 1527, 108 L.Ed.2d 767 (1990); *J.V. Peters & Co. v. Administrator, EPA*, 767 F.2d 263, 266 (6th Cir.1985).

377. "The term 'disposal' . . . shall have the meaning provided in section 1004 of the Solid Waste Disposal Act [42 U.S.C. §§ 6903]." 42 U.S.C. § 9601(29). Section 1004 of the Solid Waste Disposal Act defines "disposal" as:

> the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

42 U.S.C. § 6903(3).

378. In the Ninth Circuit, the term "disposal" may include the passive, as well as active, migration of hazardous substances. *See Carson Harbor Village, Ltd. v. Unocal Corporation*, 227 F.3d 1196, 1210 (9th Cir.2000) (*abrogating Ecodyne Corp. v. Shah*, 718 F.Supp. 1454 (N.D.Cal.1989)); *Kaiser Aluminum*, 976 F.2d at 1342, following Fifth Circuit and holding that " 'disposal' should not be limited solely to the initial introduction of hazardous substances onto property. Rather, consistent with the overall remedial purpose of CERCLA, 'disposal' should be read broadly to include the subsequent 'move[ment], dispers[al], or released [of such substances] during landfill excava-

tions and fillings.'" (quoting and following *Tanglewood East Homeowners v. Charles-Thomas, Inc.*, 849 F.2d 1568, 1573 (5th Cir.1988)) (modifications in original); *compare Nurad Inc. v. William E. Hooper & Sons Co.*, 966 F.2d 837, 844-46 (4th Cir.1992) ("disposal" includes passive migration); *with United States v. 150 Acres of Land*, 204 F.3d 698, 705-06 (6th Cir.2000) ("disposal" requires active human conduct); *ABB Indus. Sys., Inc. v. Prime Tech., Inc.*, 120 F.3d 351, 357-59 (2d Cir.1997) (same); *United States v. CDMG Realty Co.*, 96 F.3d 706, 713-18 (3d Cir.1996) (same).

379. In determining whether a particular transaction amounts to an arrangement for disposal, courts focus on various factors. *See South Florida Water Mgmt. Dist. v. Montalvo*, 84 F.3d 402, 406-407 (11th Cir.1996), For example, where the transaction involved a sale, the inquiry is whether there was a transfer of a "useful" or "waste" product. *See AM Int'l, Inc. v. Int'l Forging Equip. Corp.*, 982 F.2d 989, 999 (6th Cir.1993); *Prudential Ins. Co. v. United States Gypsum*, 711 F.Supp. 1244, 1254 (D.N.J.1989). Several cases consider whether the defendant intended to dispose of a substance at the time of a transaction. *See Amcast Indus. Corp. v. Detrex Corp.*, 2 F.3d 746, 751 (7th Cir.1993), *cert. denied*,510 U.S. 1044, 114 S.Ct. 691, 126 L.Ed.2d 658 (1994); *United States v. Cello-Foil Products, Inc.*, 100 F.3d 1227, 1231 (6th Cir.1996); *The Ekotek Site PRP Comm. v. Self*, 932 F.Supp. 1328, 1333 (D.Utah 1996), *reconsideration denied*,932 F.Supp. 1319 (D.Utah 1996); *Edward Hines Lumber Co. v. Vulcan Materials Co.*, 685 F.Supp. 651, 654-56 (N.D.Ill.), *aff'd*,861 F.2d 155 (7th Cir.1988). Courts also look to whether a defendant made the "crucial decision" to place hazardous substances in the hands of a particular facility. *See*

United States v. A & F Materials Co., 582 F.Supp. 842, 845 (S.D.Ill.1984). "Citing these and other reported cases, litigants have at times elevated factors courts found pertinent in particular contexts to the status of bright-line rules for defining arranger liability."*South Florida Water Mgmt. Dist.*, 84 F.3d at 406; *see, e.g., Florida Power & Light*, 893 F.2d at 1317-18 (citing the reasoning from *A & F Materials*).

380. The Ninth Circuit rejects any attempt to substitute a per se rule for the phrase "arranged for" as used in § 107(a)(3)'s text. *See Cadillac Fairview/California, Inc. v. United States of America*, 41 F.3d 562, 565 (9th Cir.1994), citing *Florida Power & Light Co. v. Allis Chalmers Corp.*, 893 F.2d 1313, 1318 (11th Cir.1990) (rejecting a per se rule as to "arranger" liability under § 107(a)(3)), and *Aceto Agric. Chem. Corp.*, 872 F.2d at 1380 (Section 107(a)(3) must be given "a liberal judicial interpretation . . . consistent with CERCLA's overwhelmingly remedial statutory scheme."); *Jones-Hamilton Co. v. Beazer Materials & Servs., Inc.*, 973 F.2d 688, 695 (9th Cir.1992) (quoting and adopting analysis of *United States v. Aceto Agric. Chem. Corp.*, 872 F.2d 1373 (8th Cir.1989)).

381. The relevant inquiry is whether a "'transaction in fact involves an arrangement for the disposal [or treatment] of a hazardous substance.'" *Cadillac Fairview/California, Inc. v. United States*, 41 F.3d 562, 565 (9th Cir.1994) (quoting *Jones-Hamilton*, 973 F.2d at 695 (quoting and adopting analysis of *Aceto*, 872 F.2d at 1381); *see also Florida Power & Light Co. v. Allis Chalmers Corp.*, 893 F.2d 1313, 1318 (11th Cir.1990) (rejecting per se rule that only party who owns a hazardous substance and controls the disposal process is liable under § 107(a)

(3))). The inquiry involves a review of "all the circumstances." *Cadillac Fairview/California, Inc.*, 41 F.3d at 565; *see United States v. Cello-Foil Products, Inc.*, 100 F.3d 1227, 1231 (6th Cir.1996); *The Ekotek Site PRP Committee v. Self*, 932 F.Supp. 1328, 1333 (D.Utah 1996), *reconsideration denied*, 932 F.Supp. 1319 (D.Utah 1996); *United States v. Gordon Stafford, Inc.*, 810 F.Supp. 182, 185 (N.D.W.Va.1993).

382. The Ninth Circuit has extended liability under section 107(a)(3) to persons who have sold and therefore no longer own the hazardous substances, *Catellus Dev. Corp. v. United States*, 34 F.3d 748, 752 (9th Cir.1994); *Louisiana-Pacific Corp. v. ASARCO, Inc.*, 24 F.3d 1565, 1570-71 (9th Cir.1994), and to persons who have no control over the process leading to release of the substances, *Catellus*, 34 F.3d at 752; *Jones-Hamilton Co. v. Beazer Materials & Servs.*, 973 F.2d 688 (9th Cir.1992); *see also United States v. Aceto Agric. Chems. Corp.*, 872 F.2d 1373 (8th Cir. 1989).

383. The Ninth Circuit's most recent expression of the test for arranger liability is found in *United States v. Shell Oil Co. (McColl)*, 281 F.3d 812 (9th Cir.2002), 281 F.3d 812, 2002 Daily Journal D.A.R. 1691. That case analyzes arranger liability in the context of a party who never owned the chemicals and never had any control over their disposition. "There is no bright-line test . . . for a broad theory of arranger li ability [sic] under § 9602(a)(3). Rather we are required to sort through the fact patterns of the decided cases in order to find similarities and dissimilarities to the fact patterns of our case." The court distinguished *Aceto*, where pesticide manufacturers shipped active pesticide ingredients to Aidex, which blended them to formulate commercial grade

pesticide, then sold the pesticide to the manufacturers' customers or shipped it back to the manufacturers. Inherent in the formulation process were spills, equipment cleaning and mixing and grinding operations. In *McNoll,* the United States never owned any raw materials or intervening products. Nor did it contract out the waste-producing step of formulation. Here, Shell sold the chemical products outright for resale, FOB shipping point. It still had control when the chemicals spilled or otherwise were released into the environment on delivery, unloading and transfer at the D-D tank.

384. The sales transactions were ones in which the generation of waste was inherent. That Shell could foresee more spills or releases from washing of application equipment by B & B does not give Shell the requisite control over later B & B formulating, reloading, application and cleanup operations when B & B sold D-D to its customers or applied it for customers. *McColl* rejected an "authority to control" standard instead of "actual control." It is the "obligation" to exercise control over hazardous waste disposal, not the mere ability or opportunity to control the disposal of hazardous substances, that makes an entity an arranger. Shell did not own or operate the Site.

385. "[A] transaction is not beyond the reach of section 107(a)(3) simply because it is cast in the form of a sale [of a useful product]." *Cadillac Fairview/California Inc.,* 41 F.3d at 566; *see also Catellus,* 34 F.3d at 752; *Aceto Agric. Chems. Corp.,* 872 F.2d at 1381. "The question remains whether in light of all the circumstances the transaction involved an arrangement for disposal or treatment of a hazardous waste." *Id.; see Catellus,* 34 F.3d at 752; *Louisiana-*

Pacific Corp., 24 F.3d at 1570-71; *Jones-Hamilton*, 973 F.2d at 695; *Florida Power & Light*, 893 F.2d at 1318;*Aceto*, 872 F.2d at 1381.

386. Although arranger liability can attach "to parties that do not have active involvement regarding the timing, manner or location of disposal," *CPC Int'l, Inc. v. Aerojet-General Corp.*, 759 F.Supp. 1269, 1279 (W.D.Mich.1991), there must be some nexus between the potentially responsible party and the disposal of the hazardous substance. *See id.* at 1278; *see also Murtha*, 958 F.2d at 1199;*General Elec. Co. v. Aamco Transmissions, Inc.*, 962 F.2d 281, 286-87 (2d Cir.1992); *State of California v. Verticare Inc.*, 1993 WL 245544 at *7 (N.D.Cal. Mar.1, 1993).

387. This nexus is premised upon the potentially liable party's conduct with respect to the disposal or transport of hazardous wastes. *See* 42 U.S.C. § 9607(a); *General Elec. Co.*, 962 F.2d at 286;*Verticare Inc.*, 1993 WL 245544 at *7 ("The nexus requirement turns on whether the potentially liable party 'assumed responsibility for determining [the] fate' of the hazardous substances."); *CPC Int'l, Inc.*, 759 F.Supp. at 1278.

388. Control is a necessary factor in every case of arranger liability in the Ninth Circuit, although not in the Eighth Circuit, if ownership of the hazardous substance is shown. *See United States v. Hercules, Inc.*, 247 F.3d 706, 720 (8th Cir.2001) (distinguishing NEPACCO, 810 F.2d 743, where defendant had no ownership in the hazardous substance and no authority to control the hazardous substances); *see also United States v. TIC Investment Corp.*, 68 F.3d 1082, 1087-88 (8th Cir.1995) (holding that a finding of arranger liability requires either control over, or

"some level of participation in," activities related to the arrangement of hazardous waste disposal).

389. Here, Shell was an active participant in the D-D shipment, delivery and receiving process at Arvin with knowledge that spills and leaks of hazardous D-D were inherent and inevitable. Such spills and leaks occurred throughout the period Shell sold D-D to B & B. Shell required and controlled the transport of D-D by tanker trucks from the GATX-San Pedro terminal to B & B.

390. Specific intent to "arrange for disposal" is not required; only acquiescence in the process. *See Florida Power & Light Co. v. Allis Chalmers Corp.*, 893 F.2d 1313, 1318 (11th Cir.1990); *see also Reading Co. v. City of Philadelphia,* 823 F.Supp. at 1237. A significant release of a hazardous substance is not a prerequisite to finding arranger liability. *See A & W Smelter and Refiners, Inc. v. Clinton,* 146 F.3d 1107, 1110 (9th Cir.1998); *B.F. Goodrich,* 99 F.3d at 516; *United States v. Iron Mountain Mines,* 812 F.Supp. 1528, 1549 (E.D.Cal.1992). Because contamination often results from the accumulation of insignificant harms, a defendant does not escape liability by arguing that minuscule releases were "not really that bad" compared to those of everyone else. *See Mid Valley Bank v. North Valley Bank,* 764 F.Supp. 1377, 1386 (E.D.Cal.1991) ("contribution of a small amount to a potentially large indivisible harm does not affect the defendant's liability").

391. Whether a defendant provided a "spillage allowance" is not dispositive. *See Levin Metals Corp. v. Parr-Richmond Terminal Co.,* 781 F.Supp. 1452, 1453 (N.D.Cal.1991) (even if the defendant did not include extra pesticide as a "spillage allowance," there was a triable issue as to whether the defendant

anticipated pesticide loss in the formulation process); *accord Verticare Inc.*, 1993 WL 245544 at *10 n. 10.

392. "While factors such as a party's knowledge (or lack thereof) of the disposal, ownership of the hazardous substances, and intent are relevant to determineing whether there has been an 'arrangement' for disposal, they are not necessarily determinative of liability in every case." *South Florida Water Mgmt. Dist.*, 84 F.3d at 407. The determination as to whether a supplier may have "otherwise arranged for disposal" must be made on a case by case basis. *See Florida Power & Light*, 893 F.2d at 1317.

393. In *United States v. Aceto Agricultural Chemicals Corp.*, 699 F.Supp. 1384, 1388 (S.D.Iowa 1988), *aff'd*,872 F.2d 1373 (8th Cir.1989), a pesticide manufacturer was held potentially liable for the cost of cleaning up a pesticide formulator's site, where the manufacturer arranged to have its product formulated and packaged into commercial grade pesticide, knowing that the generation of hazardous waste due to spills and cleaning of equipment was inherent in the formulation process. *See id.* at 1387. The court reasoned that "an arrangement based on acquiescence to certain inevitable effects can be considered an arrangement for such effects." *Id.* at 1388. The Eighth Circuit explained a defendant could be liable as an arranger even if it had no authority to control the formulator's operations because the defendant retained ownership of the pesticides throughout the formulation process and "waste [was] generated and disposed of contemporaneously with the process." *Aceto Agric. Chems. Corp.*, 872 F.2d at 1381-82; *see also Jones-Hamilton Co. v. Beazer Materials & Servs., Inc.*, 973 F.2d 688, 695 (9th Cir.1992) (parties "arranged for disposal" of toxic substances where

agreement between parties contemplated 2% spillage of materials and formulator retained ownership of the materials); *Levin Metals Corp. v. Parr-Richmond Terminal Co.,* 781 F.Supp. 1448, 1450-52 (N.D.Cal. 1991) (defendant's summary judgment motion denied for the same reason); *United States v. Velsicol Chem. Corp.,* 701 F.Supp. 140, 142-43 (W.D.Tenn.1987); *Burlington N. R.R. Co. v. Woods Indus., Inc.,* 815 F.Supp., 815 F.Supp. 1384, 1392 (E.D.Wash.1993) (causing the waste to be dispersed across the site amounts to arranging for disposal).

394. In *Jones-Hamilton,* a chemical formulator agreed to formulate raw materials provided by the chemical company into wood preservation compounds. The Ninth Circuit determined that the chemical company retained ownership over all materials it supplied the formulator, materials including substances that were classified as hazardous by CERCLA. The Appeals Court found that the chemical company "arranged for disposal" of toxic substances within the meaning of CERCLA, where the agreement between the parties contemplated 2% spillage of materials.

395. Following the reasoning of *Jones-Hamilton* and *Aceto Agricultural,* other courts have found that arranger liability may attach if the defendants knew or should have known that generation of hazardous waste was an inherent part of the pesticide delivery process, and retained ownership of the pesticides, such that it could be inferred that they had the authority to control the work in process. *See South Florida Water Mgmt. Dist. v. Montalvo,* 84 F.3d 402, 406-407 (11th Cir.1996) (arranger liability proper where defendants knew, or should have known, that the generation of hazardous waste was an inherent

part of pesticide spraying); *State of California v. Verticare Inc.*, 1993 WL 245544 at *8-9 (arranger liability proper where defendants knew or should have known that generation of hazardous waste was inherent in process of delivering and picking up pesticides and where defendants retained ownership of pesticides implying authority to control process); *Levin Metals Corp. v. Parr-Richmond Terminal Co.*, 781 F.Supp. 1448, 1450-52 (N.D.Cal.1991) (arranger liability may attach where parties knew that generation of hazardous waste was inherent in formulation process and chemical company retained ownership of chemicals, and authority to control the work in process); *United States v. Velsicol Chem. Corp.*, 701 F.Supp. 140, 142-43 (W.D.Tenn.1987); *Burlington N. Railroad Co., v. Woods Indus., Inc.*, 815 F.Supp., 815 F.Supp. 1384, 1392 (E.D.Wash.1993) (causing the waste to be dispersed across the site amounts to arranging for disposal). Here the evidence preponderates to establish that Shell did not retain ownership of its products after delivery to B & B. It retained control over delivery of its products to the Site. Once Shell's products were placed into storage at B & B's facilities, B & B managed and controlled all Shell chemicals at the Site.

396. Arranger liability has also been found, despite the absence of any "ownership" interest at the time of disposal, where a spill or disposal occurs in connection with an arranged-for service, and the spill or disposal is known to be a natural, probable or inherent consequence of the service. *See United States v. Cello-Foil Prods., Inc.*, 100 F.3d 1227, 1233 (6th Cir.1996); *Redwing Carriers, Inc. v. Saraland Apartments, Inc.*, 94 F.3d 1489, 1512 (11th Cir.1996); *Mathews v. Dow Chem. Co.*, 947 F.Supp. 1517, 1525 (D.Colo.1996); *see also Cadillac Fairview/California*

Inc. v. United States, 41 F.3d 562, 565 (9th Cir.1994); *Aceto Agric. Chems. Corp.,* 872 F.2d at 1378-82;*E.S. Robbins Corp., v. Eastman Chem. Co.,* 912 F.Supp. 1476, 1487 (N.D.Ala.1995); *Reading Co. v. City of Philadelphia,* 823 F.Supp. 1218, 1237 (E.D.Pa.1993).

1. *Shell is Liable as an Arranger*

397. The known, anticipated, and inevitable leakage of D-D during the delivery and unloading process is a "disposal" within the meaning of CERCLA Section 101(32). "Disposal" expressly includes any "leaking", "spilling" or "placing" of the hazardous substance such that it may enter the environment. The spilling and placing of D-D in drip buckets and pans under the tanker's spigot, from which spills and leakage resulted, is a "disposal" because it is the "spilling" or "placing" of a hazardous substance in a manner that causes it to enter the environment. The transfer process and unloading of D-D from tanker trucks to the B & B storage tanks inevitably entailed leakage and spillage. The process was effectively controlled and arranged for by Shell.

398. Under the "Conditions of Sale" between B & B and Shell, Shell determined and arranged for the means and methods of delivery of the D-D to the Arvin plant. It also retained title to D-D. *See* Ex. 1199, Bates No. 002907 ("Seller may deliver any Product in any delivery equipment, by any means of transportation and from any shipping point that Seller may select . . . .").

399. Shell hired common carrier delivery trucks to haul D-D to B & B's Arvin plant, that Shell required to have certain equipment to transfer D-D into bulk storage and to minimize spillage. *See* Findings of Fact ("FOF") at ¶¶ 149-150. Before the early 1980s,

Shell required the tanker truck driver to have a 30 foot hose and certain couplings and other equipment. The Shell manual which B & B was required to follow, detailed loading and unloading procedures and specified the protective equipment employees had to wear to load and unload D-D. *See* FOF at ¶¶ 161-162. By the early 1980s, Shell dictated that B & B personnel unload the tanker truck and purchase the 30 foot hose among other unloading equipment. As part of the "Conditions of Sale," Shell also required B & B to "furnish and maintain facilities for receiving and storing all Products delivered, which are safe, adequate and in compliance with all applicable governmental requirements," and to "unload each delivery promptly and at [B & B's] own risk and expense (including any demurrage due to delay in unloading)."*See* Ex. 1199, Bates No. 002907.

400. As part of its early 1960s distribution arrangements, Shell required B & B to store highly corrosive D-D in bulk tanks, at a time when the distributors did not have the equipment or capital to deal with the corrosive D-D. It was known that spills and leaks would and did result.

401. Spills of D-D were expected and inherent in the delivery and unloading process that Shell arranged. *See* FOF at ¶¶ 132-142. Shell understood this. *See* FOF at ¶¶ 146-148, 162. Shell knew that spillage of D-D onto the ground posed a substantial threat of groundwater contamination. See FOF at ¶ 157. Shell's handling instructions were not limited to the delivery of D-D, but also included instructions on how any chemical spills were to be handled. *See* FOF ¶ 148. Shell had the authority to control, and did substantially control, the delivery and unloading process of D-D to B & B at the Site.

402. Whether Shell retained title to the spilled material at the time of each spill is not determinative. An express retention of title to hazardous substances during some service performed on the substances only underscores the owner's ability to control the process, *see Aceto Agric. Chems. Corp.*, 872 F.2d at 1378-82 (manufacturer owned pesticide ingredients which while formulated inherently generated waste through spills, cleaning of equipment, and mixing and grinding operations). The Ninth Circuit has made clear, CERCLA does not require an arranger to have title to the hazardous substances at the moment of disposal. *See Cadillac Fairview/Cal., Inc. v. United States,* 41 F.3d 562, 566 (9th Cir.1994) (rubber companies that transferred contaminated styrene to Dow Chemical for reprocessing are arrangers); *Catellus Dev. Corp. v. United States,* 34 F.3d 748, 752 (9th Cir.1994) (automotive parts company that sent used car batteries to a battery-cracking plant for lead recovery and disposal is an arranger); *see also United States v. Northeastern Pharm. & Chem. Co.,* 810 F.2d 726, 743 (8th Cir.1986), *cert. denied,*484 U.S. 848, 108 S.Ct. 146, 98 L.Ed.2d 102 (1987); *United States v. Bliss,* 667 F.Supp. 1298, 1307 (E.D.Mo.1987).

403. Section 107 refers to direct arranger liability for a "person who by contract, agreement, or otherwise arranged for disposal . . . of hazardous substances *owned or possessed by such person,* by any other party or entity, at any facility owned or operated by another party or entity and containing such hazardous substances."42 U.S.C. § 107(a)(3) (emphasis added). It requires an arranger to have "control" over a process that releases waste. *Shell Oil Co.,* 281 F.3d at 822. The underscored language refers to ownership or possession by a person making

an arrangement *at the time of the arrangement,* not at the time of disposal. Otherwise, the Government would seldom be able to establish arranger liability because "[r]equiring continuity of ownership or control for section 107(a)(3) liability would make it too easy for a party, wishing to dispose of a hazardous substance, to escape by a sale its responsibility to see that the substance is safely disposed of." *Catellus Dev. Corp.,* 34 F.3d at 752; *see also Gould v. A & M Battery and Tire Serv.,* 954 F.Supp. 1020, 1997 WL 82707 (M.D.Pa. Jan.29, 1997); *United States v. Bliss,* 667 F.Supp. 1298, 1307 (E.D.Mo.1987) (a party need not have actual control or ownership over the hazardous waste in order for § 107(a)(3) liability to attach). "[A]rranger liability 'is not so facilely circumvented' by simply characterizing arrangements for disposal as sales." *Verticare,* 1993 WL 245544 at *9; *New York v. General Elec. Co.,* 592 F.Supp. 291, 297 (N.D.N.Y. 1984); *United States v. Conservation Chem. Co.,* 619 F.Supp. 162, 239-40 (W.D.Mo.1985).

404. Shell owned the D-D when it arranged for the delivery and unloading at the B & B Site, knowing that spills and leaks were inherent and would occur in the D-D delivery-unloading-storage process. *See* FOF ¶¶ 149-150.

405. Shell's intent in its delivery of D-D is in part expressed in each delivery contract, which was marked "FOB destination" to B & B's Arvin Site. Determining legal title and "[i]nterpreting unambiguous contractual provisions and determining their legal effect is normally an exercise that involves questions of law." *Solmitz v. United States,* 640 F.2d 1089, 1091 (9th Cir.1981); *see E.P. Hinkel & Co., Inc. v. Manhattan Co.,* 506 F.2d 201, 204 (D.C.Cir.1974);

C.H. Codding & Sons v. Armour and Co., 404 F.2d 1, 8 (10th Cir.1968).

406. As part of the "Conditions of Sale," B & B was required to "furnish and maintain facilities for receiving and storing all Products delivered, which are safe, adequate and in compliance with all applicable governmental requirements . . . ." Ex. 1199 at p. 7. This was part of an "arrangement" by Shell for delivery and transfer of D-D to B & B at the Arvin Site. For instance, if a tanker truck carrying D-D drove to the Arvin Site, readied hoses and buckets for unloading, and unloading of the D-D began, if it became apparent that the bulk storage tank was inadequately maintained "for receiving and storing" the delivered D-D, Shell had the right to have the tanker truck return to the GATX terminal in San Pedro. D-D was corrosive, ate through mild steel, and caused unpredictable tank failures. *See* FOF ¶ 105. If B & B failed to comply with a condition of sale, *e.g.* "furnish[ing] and maintain[ing] facilities for receiving and storing all Products delivered," legal title would not pass to B & B, it would remain in Shell.

B & B did not necessarily obtain legal title to the D-D simply because the D-D tanker truck entered the Arvin Site. Although B & B gained "stewardship" once Shell's D-D tanker arrived on the Arvin Site, Shell had delivery and transfer requirements from the tankers to B & B's bulk storage, which Shell monitored. *See* Haverland Dep. at 2208:24-2209:1.

407. At trial, Mr. Haverland did not suggest that B & B had legal title to the D-D once the common carrier truck turned onto B & B's driveway. Mr. Haverland explained Shell's intent that B & B was to retain stewardship over the D-D upon arrival at the facility:

> THE COURT: What he is, I think, expressing is a matter of intent, and the seller can state its intent. Whether or not that's the legal fact is a different question. But, in other words, the seller can say, "We deliver to a common carrier with the instruction and our invoice provides that this is FOB destination, we mean when it leaves the highway and it turns into your driveway, it's your product." Stewardship doesn't necessarily say legal title, but what it does say is, "You handle it now."
>
> Is that—
>
> Mr. Haverland: That's correct.
>
> THE COURT:-what Shell intended?
>
> Mr. Haverland: Yes.

Haverland test. 2209:9-22.

408. Shell had the authority under the "Conditions of Sale" to determine the means and methods of delivery and unloading of the D-D. Shell knew that spills were inherent in the transfer to storage tank, delivery-unloading process. Shell knew that the spills of D-D onto the ground posed a substantial threat of groundwater contamination. Under the totality of the circumstances, Shell is liable for arranging to dispose of D-D, a hazardous substance which was released at the Site causing the need for response within the meaning of CERCLA.

D. *Useful Product Doctrine*

409. Some courts have held that a sale of a useful product that contains hazardous substances is not an arrangement for disposal. *See Florida Power & Light Co. v. Allis-Chalmers Corp.*, 893 F.2d 1313, 1318-19 (11th Cir.1990), under the "useful product doctrine."

See California v. Summer Del Caribe, Inc., 821 F.Supp. 574 (N.D.Cal.1993) (citing cases in support of this doctrine); *KN Energy, Inc. v. Rockwell Int'l Corp.*, 840 F.Supp. 95 (D.Colo.1993); *Chesapeake & Potomac Tel. Co. v. Peck Iron & Metal Co.*, 814 F.Supp. 1269, 1275 (E.D.Va.1992); *Prudential Ins. Co. v. United States Gypsum*, 711 F.Supp. 1244, 1254 (D.N.J.1989).

410. Shell contends the useful product doctrine bars CERCLA arranger liability. The D-D Shell sale to B & B of a "useful" pesticide product intended to be resold to farmers and sub-distributors in the region for applications to soil. *See* Doc. 1318 ("Shell Oil Company's Proposed Conclusions of Law"), 6:21-24 ("[B]oth B & B and Shell intended that D-D would be used for . . . [its intended] purpose . . . as a soil fumigant to control nematodes. D-D was useful and valuable (as opposed to being a waste or by-product).").

411. In confronting an identical argument in *Cadillac Fairview/California Inc.*, the Ninth Circuit rejected such an analysis and found the useful product doctrine inapplicable.

The rubber companies emphasize the fact that contaminated styrene had value on the market, and that Dow credited their accounts seven cents for each pound they sent to Dow for treatment. They seek to avoid arranger liability under section 107(a)(3) by relying upon cases holding that sale of a hazardous substance in the form of a useful product is not an arrangement for disposal or treatment within the meaning of the section. *See, e.g., Florida Power & Light*, 893 F.2d at 1317. As these authorities recognize, however, a transaction is not beyond the reach of section 107(a)(3) simply because it is cast in the form of a sale. *Catellus*, 34 F.3d at 752. *The question*

remains whether in light of all the circumstances the transaction involved an arrangement for disposal or treatment of a hazardous waste. See id.; ASARCO, 24 F.3d at 1570-71; *Jones-Hamilton,* 973 F.2d at 695; *Florida Power & Light,* 893 F.2d at 1318; *Aceto,* 872 F.2d at 1381.

Id. at 566; see also *Louisiana-Pacific Corp.,* 24 F.3d at 1570-71. Despite the sale to Dow of a "useful product" containing hazardous substances, a trier of fact could find the purpose of the transactions to have been an arrangement for the treatment of contaminated styrene, thus triggering CERCLA arranger liability. *See Cadillac Fairview/California Inc.,* 41 F.3d at 566.

412. Several district courts within the Ninth Circuit have also found the useful product doctrine inapplicable, because the contemplated, or anticipated, spilled product is not a useful product. *See Courtalds Aerospace, Inc. v. Huffman,* 826 F.Supp. 345, 353 (E.D.Cal.1993) ("Plaintiff is not alleging that harm was done to its land by the ash which was sold but by the ash which was allowed to blow away . . . . No productive use existed when ash was allowed to escape into the air."); *Levin Metals v. Parr-Richmond Terminal,* 781 F.Supp. 1448, 1452 n. 3 (N.D.Cal.1991) ("Here, the substance at issue is the DDT that was released into the environment, not DDT that was put to productive use."), *clarified on other grounds,*781 F.Supp. 1452 (N.D.Cal.1991).

413. The Fifth Circuit has also recognized the limited applicability of the useful product doctrine's rationale. "Were we to accept the defendants' argument that . . . excludes from liability any product which is not a waste, the exception would effectively remove an entire class of environmental threats from

CERCLA's reach. Any accidental explosion, spill, or release of a useful industrial chemical would be excluded from the statute regardless of the threat posed to the public and the environment. CERCLA would effectively become nothing more than a waste dump statute." *Uniroyal Chem. Co. v. Deltech. Corp.*, 160 F.3d 238, 257 (5th Cir.1999) (discussing the "consumer product exception").

414. "CERCLA liability is possible for the disposal of wastes that are also [useful] products." *Louisiana-Pacific Corp. v. ASARCO Inc.*, 24 F.3d 1565, 1575 (9th Cir.1994) (citing *United States v. Conservation Chem. Co.*, 619 F.Supp. 162, 240-41 (W.D.Mo.1985) (sale of lime slurry and fly ash for cleanup of environmental site); *State of New York v. General Elec. Co.*, 592 F.Supp. 291, 297 (N.D.N.Y.1984) (sale of used transformer oil to dragstrip for use in controlling dust); *United States v. A & F Materials Co., Inc.*, 582 F.Supp. 842, 844-45 (S.D.Ill.1984) (sale of caustic solution to neutralize acidic oil).

415. The analysis does not resolve to an either-or finding. Arranger liability "is not to be so facilely circumvented" as to simply characterize arrangements for disposal as sales of a useful product. *See New York v. General Elec. Co.*, 592 F.Supp. 291, 297 (N.D.N.Y.1984); *Conservation Chem. Co.*, 619 F.Supp. at 239-40 (holding that even sales "in the normal course of business" of a "useful product" can give rise to CERCLA liability, if they result in the placement of hazardous substances at a facility). "[P]ersons cannot escape liability by 'contracting away' their responsibility or alleging that the incident was caused by the act or omission of a third party." *New York v. General Elec. Co.*, 592 F.Supp. 291, 297 (N.D.N.Y.1984).

416. Section 9607(a) of CERCLA explicitly applies to the "disposal or treatment of hazardous *substances,*" not merely to the disposal or treatment of hazardous *waste.*42 U.S.C. § 9607(a)(3) (emphasis added); *see also Cadillac Fairview / California Inc.,* 41 F.3d at 565; *Verticare,* 1993 WL 245544 at *9; *State of California v. Summer Del Caribe, Inc.,* 821 F.Supp. 574, 579 (N.D.Cal.1993).Section 6903(3) of the Solid Waste Disposal Act only defines the actions of "disposal," not the objects of those actions, *i.e.,* the materials to be disposed of or treated. *See Summer Del Caribe,* 821 F.Supp. at 579;*Verticare,* 1993 WL 245544 at *9.

417. Reading CERCLA to apply only to hazardous wastes, and not to the broader definition of hazardous substances, is contrary to the intent of the statute and moots important portions of CERCLA. CERCLA legislative history does not indicate Congress desired to limit the scope of private actions to encompass only hazardous wastes rather than all hazardous substances. *See CP Holdings v. Goldberg-Zoino & Asocs.,* 769 F.Supp. 432, 437 (D.N.H.1991) (criticizing *Stevens Creek); Summer Del Caribe, Inc.,* 821 F.Supp. at 579.

418. The one Ninth Circuit case, *pre-Cadillac / Fairview California,* that holds "disposal" refers only to "the affirmative act of discarding a substance as "waste," and not to the productive use of the substance," explained its substitution of the term "hazardous substance" for "hazardous waste," noting "in the context of CERCLA, hazardous substances are generally dealt with at the point when they are about to, or have become, wastes." *See 3550 Stevens Creek Assocs. v. Barclays Bank,* 915 F.2d 1355, 1362 (9th Cir.1990).*3550 Stevens Creek Associates* considered a

voluntary removal of asbestos during remodeling of a commercial building, where recovery was sought against a bank that owned the building when the asbestos materials were installed. There was no evidence that asbestos built into the building's structure could enter the environment or be emitted into the air. Even if the asbestos became brittle, any resulting hazard would remain inside the building and could not travel into the environment outside the building. *See* 915 F.2d at 1361.

419. *3550 Stevens Creek Associates* is distinguishable. There, only "productive" asbestos installed in the building was considered, not the contemplated, or anticipated, "waste" asbestos that potentially would be released during its removal from the building. *See Levin Metals Corp. v. Parr-Richmond Terminal Co.*, 781 F.Supp. 1448, 1452 n. 3 (N.D.Cal.1991) (distinguishing *3550 Stevens Creek Associates* on similar grounds: "Here, the substance at issue is the DDT that was released into the environment, not DDT that was put to productive use."); *Verticare Inc.*, 1993 WL 245544 at *9, *10 n. 12 ("At issue here are the pesticides which contaminated the Verticare site, not the pesticides that were put to productive use by the growers.").

420. In the Ninth Circuit, the useful product doctrine has been rejected when the hazardous substance is released under conditions where it can serve no useful purpose. The D-D spilled or leaked onto the ground during the delivery-unloading process could only be waste of a hazardous substance; it had no useful purpose. The "useful product" doctrine does not exonerate Shell.

E. *Third-Party Defense*

421. Shell has not established the third-party defense. B & B and Shell had a general sales agreement whereby B & B acted as a distributor of Shell agricultural chemical products for sub-distributors or local farmers in the area. Spills and leaks were inherent in the delivery-unloading for bulk storage process that Shell arranged and controlled by its sales contracts. Spills, regularly and inevitably, occurred during the unloading of D-D, unhooking of the hoses and coupling and uncoupling of the rigs. The amount of individual D-D spills varied from a few cup-fulls to 5 gallons per spill. Although buckets were often placed underneath each hose end or fittings to prevent residual spills or leaks, the bucket sometimes became unstable and would tip over, or would not contain overflow from the hose, or would often be spilled almost every time by drivers when they "walked the bucket."

422. Each of these spills was an expected result of the contract for the D-D delivery and sale to B & B by Shell. On this record, cannot invoke third-party defense.

VII. INCURRED COSTS & CONSISTENCY WITH NCP

423. CERCLA § 107 provides for the recovery of the following costs:

> (A) *all costs of removal or remedial action* incurred by the United States Government or a State . . . not inconsistent with the national contingency plan;
>
> (B) any other necessary costs incurred by any other person consistent with the national contingency plan;

(C) damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from such a release; and

(D) the costs of any health assessment or health effects study carried out under section 9604(i) of this title.

42 U.S.C. § 9607(a)(4) (emphasis added); *see United States v. Kramer,* 913 F.Supp. 848, 867 (D.N.J.1995).

424. Courts have emphasized that consistency with the National contingency Plan ("NCP") is "the *only* criterion for the recoverability of response costs under CERCLA."*Laidlaw Waste Systems, Inc. v. Mallinckrodt, Inc.,* 925 F.Supp. 624, 632 (E.D.Mo. 1996) (citation and quotation omitted); *United States v. American Cyanamid Co.,* 786 F.Supp. 152, 161 (D.R.I.1992).

A. *Presumption of Consistency and Costs*

425. The Defendants bear the burden of proof to show inconsistency with the NCP when the United States or a state government seeks recovery of CERCLA costs. *See United States v. Chapman,* 146 F.3d 1166, 1170 (9th Cir.1998) ("When the United States is seeking recovery of response costs, consistency with the NCP is presumed."); *United States v. Hardage,* 982 F.2d 1436, 1442 (10th Cir.1992); *Northeastern Pharm. & Chem. Co.,* 819 F.2d at 747, *cert. denied,*484 U.S. 848, 108 S.Ct. 146, 98 L.Ed.2d 102 (1987).

a. The factors that Congress intended the EPA to consider when selecting a remedy under CERCLA are set forth in the National contingency Plan ("NCP"). *See* 42 U.S.C. § 9604(a)(1). The NCP is a set

of regulations promulgated by the EPA that "establishes procedures and standards for responding to releases of hazardous substances." *County Line Inv. Co. v. Tinney,* 933 F.2d 1508, 1511 (10th Cir.1991).

b. The NCP's purpose "is to give some consistency and cohesiveness to response planning and actions." *Bunger v. Hartman,* 797 F.Supp. 968, 973 (S.D.Fla.1992); *see also Greene v. Product Mfg. Corp.,* 842 F.Supp. 1321, 1324 (D.Kan.1993). "The NCP is designed to make the party seeking response costs choose a cost-effective course of action to protect the public health and the environment." *Washington State Dep't of Transp. v. Washington Natural Gas Co.,* 59 F.3d 793, 802 (9th Cir.1995).

c. The EPA is generally entitled to all costs, even if unreasonable or unnecessary unless the defendant proves that such costs are inconsistent with the NCP. *See Bell,* 3 F.3d at 906. In *United States v. Northeastern Pharm. & Chem. Co., Inc.,* 810 F.2d 726 (8th Cir.1986), the court found that § 107(a)(4)(A) does not refer to "all reasonable costs" but simply to "all costs," and concluded that "'all costs' incurred by the government that are not inconsistent with the NCP are conclusively presumed to be reasonable." *Id. United States v. Hardage,* 982 F.2d 1436 (10th Cir.1992), establishes, "[a]s long as the government's choice of response action is not inconsistent with the NCP, its costs are presumed to be reasonable and therefore recoverable." *Id.* at 1443. *Cf. United States v. R.W. Meyer, Inc.,* 889 F.2d at 1504 (emphasis added) ("to the extent cleanup actions are necessary, . . . the statute contemplates that those responsible for hazardous waste at each site must bear the full cost of cleanup actions").

426. Only substantial, not strict compliance with the NCP is required. *See Wickland,* 792 F.2d at 891; *NL Indus.,* 792 F.2d at 898-99; *Louisiana-Pacific Corp. v. Asarco, Inc.,* 24 F.3d 1565, 1576 (9th Cir. 1995), *cert. denied,*513 U.S. 1103, 115 S.Ct. 780, 130 L.Ed.2d 674 (1995). Variance with the NCP is not necessarily a complete defense to liability for costs, because a defendant must still show that the cleanup caused by the variance with the NCP resulted in excess costs for which the defendant should not be found responsible. *See O'Neil v. Picillo,* 682 F.Supp. 706, 729 (D.R.I.), *aff'd,*883 F.2d 176 (1st Cir.1989), *cert. denied,*493 U.S. 1071, 110 S.Ct. 1115, 107 L.Ed.2d 1022 (1990).

427. Courts do not review the details of implementation of a response action because the "NCP regulates choice of response actions, not costs." *Hardage,* 982 F.2d at 1443 (emphasis omitted). When making a determination as to inconsistency with the NCP, a court should look to the response action as a whole, rather than to individual costs within that action. *Id.; Kramer,* 913 F.Supp. at 866.

B. *Arbitrary and Capricious Standard of Review of CERCLA Costs*

428. To establish that the Government's response action is inconsistent with the NCP, a defendant must establish that the EPA acted arbitrarily and capriciously in choosing a particular response action to respond to a hazardous waste site. *See* 42 U.S.C. § 9613(j)(2); *U.S. v. Hardage,* 982 F.2d at 1442; *NEPACCO,* 810 F.2d at 748; *Bell,* 3 F.3d at 905; *Northeastern,* 810 F.2d at 747; *United States v. R.W. Meyer, Inc.,* 889 F.2d 1497, 1508 (6th Cir.1989), *cert. denied,*494 U.S. 1057, 110 S.Ct. 1527, 108 L.Ed.2d 767 (1990); *Ottati & Goss,* 630 F.Supp. at 1395;

United States v. Conservation Chem. Co., 619 F.Supp. 162, 186 (W.D.Mo.1985); *United States v. Ward*, 618 F.Supp. 884, 899 (E.D.N.C.1985). An agency's decision is arbitrary and capricious if:

> The agency has relied on factors which congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it would not be ascribed to a difference in view or the product of agency expertise.

Inland Empire Public Lands Council v. Glickman, 88 F.3d 697 (9th Cir.1996) (quoting *Motor Vehicle Mfrs. Ass'n v. State Farm*, 463 U.S. 29, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983)).

429. Whether a response action is arbitrary and capricious is a question of law determined on the basis of the administrative record. *See* 42 U.S.C. § 9613(j); *Amtreco*, 846 F.Supp. at 1585;*Kelly v. Thomas Solvent Co.*, 790 F.Supp. 719, 727-30 (W.D.Mich.1990). If the response action chosen by the EPA has any rational basis, it is not arbitrary and capricious. *See Adams v. EPA*, 38 F.3d 43, 49 (1st Cir.1994); *see also Brown v. Rauscher Pierce Refsnes, Inc.*, 994 F.2d 775, 779 (11th Cir.1993). The scope of review under the "arbitrary and capricious" standard is therefore narrow, and a court should not substitute its judgment for that of the agency. *See Caribbean Petroleum Corp. v. EPA*, 28 F.3d 232, 234 (1st Cir.1994) (quoting *Motor Vehicles Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983)).

a. Although the arbitrary and capricious standard of review is very lenient, the court is not to

substitute its judgment for that of the agency. *See Bell,* 3 F.3d at 905. "Judicial review 'must be based on something more than trust and faith in EPA's experience.'" *American Petroleum Inst. v. EPA,* 661 F.2d 340, 349 (5th Cir.1981) (quoting *Appalachian Power Co. v. Train,* 545 F.2d 1351, 1365 (4th Cir. 1976)); *see Bell,* 3 F.3d at 905. The agency must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made. *See Motor Vehicles Mfrs. Ass'n,* 463 U.S. at 43; *Bell,* 3 F.3d at 905.

b. Even if a court finds EPA's response action arbitrary and capricious, however, the remedy is not to disallow all costs, but rather to disallow only those costs that are inconsistent with the NCP. *See* 42 U.S.C. § 9613(j)(3). The inquiry in a cost recovery action brought by the United States always returns to the basic question of whether the response actions are not inconsistent with the NCP. *See United States v. Fairchild Indus., Inc.,* 766 F.Supp. 405, 413 n. 12 (D.Md.1991).

C. *Review of Cost and Site Remedy Evidence*

430. In determining whether EPA's decision was arbitrary and capricious, a court should review the information EPA relied on, not what EPA failed to learn. *See In the Matter of Bell Petroleum Servs., Inc.,* 3 F.3d 889, 905 n. 20 (5th Cir.1993). The EPA's post-hoc rationalizations in justification of its decision are not considered, nor those unsupported by the administrative record. *See State Farm,* 463 U.S. at 50, 103 S.Ct. at 2870. "The only information relevant to our determination of whether the EPA's decision was arbitrary and capricious is the information that the EPA relied on in making that decision. Events

occurring subsequent to the decision cannot be relied upon to support it." *Bell,* 3 F.3d at 905 n. 20. The rationale for this rule is that "the question is not whether the EPA was right or wrong, but whether its decision was made without caprice." *ELF Atochem North America, Inc. v. United States,* 882 F.Supp. 1499, 1502 (E.D.Pa.1995); *see also Asarco, Inc. v. EPA,* 616 F.2d 1153, 1160 (9th Cir.1980).

a. If EPA examined the relevant data and articulated a satisfactory explanation for its action, including a rational connection between the facts found and the choice made, the action is not arbitrary and capricious. *See Bell Petroleum,* 3 F.3d at 900.

b. Because determining the appropriateness of a response action "involves specialized knowledge and expertise, the choice of a particular cleanup method is a matter within the discretion of the EPA." *United States v. Northeastern Pharm. & Chem. Co.,* 810 F.2d 726, 748 (8th Cir.1986), *cert. denied,*484 U.S. 848, 108 S.Ct. 146, 98 L.Ed.2d 102 (1987); *United States v. Akzo Coatings of America, Inc.,* 949 F.2d 1409, 1424 (6th Cir.1991). Otherwise stated, a court should not substitute a layman's judgment for that of the EPA. *Hardage,* 982 F.2d at 1442; *United States v. Gurley Refining Co.,* 788 F.Supp. 1473, 1481 (E.D.Ark.1992), *aff'd in part and rev'd in part on other grounds,* 43 F.3d 1188 (8th Cir.1995), *cert. denied,*516 U.S. 817, 116 S.Ct. 73, 133 L.Ed.2d 33 (1995); *Ward,* 618 F.Supp. at 900. The fact that a particular response action was not the best choice in hindsight does not make the response action arbitrary and capricious. *Kelly,* 790 F.Supp. at 728.

D. *Scientific Opinion-Deference to the EPA*

431. Although courts often rely on expert testimony to understand technical or arcane issues, a court

should not use such "outside evidence to determine the rightness or wrongness of the agency decision, but solely to evaluate whether there is anything in the record to support the agency's decision." *ELF Atochem,* 882 F.Supp. at 1503. "EPA is required to act upon the informed scientific opinion of its employees." *Ward,* 618 F.Supp. at 900-01. A court should defer to EPA's decision in the face of conflicting technical data. *See Marsh v. Oregon Natural Res. Council,* 490 U.S. 360, 378, 109 S.Ct. 1851, 104 L.Ed.2d 377 (1989); *Akzo Coatings,* 949 F.2d at 1424. "When specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts, even if, as an original matter, a court might find contrary views more persuasive." *Marsh,* 490 U.S. at 378. "When examining this kind of scientific determination . . . a reviewing court must generally be at its most deferential." *Akzo Coatings,* 949 F.2d at 1424 (quoting *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc.,* 462 U.S. 87, 103, 103 S.Ct. 2246, 76 L.Ed.2d 437 (1983)); *see also Ward,* 618 F.Supp. at 900-01.

a. The "[amount of] deference an agency decision is due depends in part on such factors as how much deliberation went into reaching it and whether the decision fits with a policy the agency has consistently followed." *A & W Smelter and Refiners, Inc. v. Clinton,* 146 F.3d 1107, 1112 (9th Cir.1998), *citing Atchison, Topeka & Santa Fe R.R. v. Pena,* 44 F.3d 437, 442 (7th Cir.1994), *aff'd sub nom., Bhd. of Locomotive Eng'rs v. Atchison, Topeka & Santa Fe R.R.,* 516 U.S. 152, 116 S.Ct. 595, 133 L.Ed.2d 535 (1996); *Barnett v. Weinberger,* 818 F.2d 953 (D.C.Cir. 1987).

b. The EPA is due substantial deference in interpreting and implementing CERCLA-"so long as [its] decisions do not collide directly with substantive statutory commands and so long as procedural corners are squarely turned." *Caribbean Petroleum Corp.*, 28 F.3d at 234 (quoting *Puerto Rico Sun Oil*, 8 F.3d at 77) (other citations omitted); *see generally Chevron U.S.A. v. Natural Res. Def. Council*, 467 U.S. 837, 842-45, 104 S.Ct. 2778, 2781-83, 81 L.Ed.2d 694 (1984).

c. The EPA is entitled to deference with regard to factual questions involving scientific matters in its own area of expertise. *See Puerto Rico Aqueduct & Sewer Auth.*, 35 F.3d at 604 (citations omitted). "Mixed questions of law and fact, at least to the extent that they are fact-dominated, fall under this rubric." *Id.* (citation omitted). Similarly, a court defers to an agency's interpretation of a statute that it is charged with enforcing, and its deference increases when the agency interprets its own regulations. *See id.*

E. *Valid Response Costs; Excessive or Unreasonable Costs*

432. Response costs include, *inter alia*, the costs of investigations, clean-up, sampling, overseeing investigations, security fencing and other restrictive measures, and enforcement activities. *See* 42 U.S.C. § 9601(25); *Cadillac Fairview/California, Inc. v. Dow Chem. Co.*, 840 F.2d 691, 695 (9th Cir.1988); *Wickland Oil Terminals v. Asarco, Inc.*, 792 F.2d 887, 892 (9th Cir.1986). The United States may also recover overhead or indirect costs associated with administering the Superfund program. *See United States v. Iron Mountain Mines, Inc.*, 812 F.Supp. 1528, 1543 (E.D.Cal.1992).

a. Neither CERCLA nor the NCP imposes an "obligation on the United States to minimize its response costs for the benefit of responsible parties who are liable for the costs." *American Cyanamid Co.*, 786 F.Supp. at 152, 161.

b. Proving that costs are unreasonable, excessive or unnecessary does not show inconsistency with the NCP. *See Hardage,* 982 F.2d at 1443; *American Cyanamid Co.,* 786 F.Supp. at 161-62; *United States v. Iron Mountain Mines, Inc.,* 812 F.Supp. 1528, 1543 (E.D.Cal.1992); *Kramer,* 757 F.Supp. at 436. "Cost-effectiveness is a criteria for the EPA *only* when choosing a permanent remedy for a site among competing alternatives. . . . Once EPA validly chooses a permanent remedy for a site, cost-effectiveness is no longer a viable challenge to the implementation of that remedy." *American Cyanamid Co.,* 786 F.Supp. at 162.

F. *Documentation of Costs*

433. EPA may document its costs by means of cost summaries and EPA payroll reports. *See United States v. Northernaire Plating Co.,* 685 F.Supp. 1410, 1415 (W.D.Mich.1988), *aff'd, United States v. R.W. Meyer, Inc.,* 889 F.2d 1497 (6th Cir.1989), *cert. denied,*494 U.S. 1057, 110 S.Ct. 1527, 108 L.Ed.2d 767 (1990).

a. The Ninth Circuit recognizes the methods employed by the United States to document costs satisfy the requirements of the National Contingency Plan. *See United States v. Chapman,* 146 F.3d 1166 (9th Cir.1998). As the Court stated:

> The EPA's documentation of its response action and costs is consistent with the requirements of the NCP. The administrative record adequately

> documents the EPA's actions through September 1990, and the declarations, contracts, and action memorandum document the actions taken for the remaining period. In addition, the EPA kept extensive records of recovery costs in the form of timesheets, cost estimates, and accountant and attorney declarations. The district court was correct in concluding that the EPA acted consistently with the NCP in maintaining appropriate documentation.

Id. at 1171.

b. Cost documentation that does not contain descriptions of activities performed by EPA personnel is still sufficient to entitle the government to its response costs. *See United States v. Vertac Chem. Corp.*, 33 F.Supp.2d 769 (D.Ark.1998). Failure to provide descriptive documentation does not make the Government's accounting inaccurate. *See United States v. Bell Petroleum Servs., Inc.*, 734 F.Supp. 771, 781 (W.D.Tex.1990) *rev'd on other grounds*,3 F.3d 889 (5th Cir.1993).

c. Detailed cost summaries of EPA's costs are "sufficient to establish a prima facie case that the government is entitled to its response costs." *United States v. Chromalloy American Corp.*, 158 F.3d 345, 352 (5th Cir.1998). A defendant cannot challenge the government's documentation by making vague claims concerning "the validity of those costs based on the government's evidence." *R.W. Meyer, Inc.*, 889 F.2d at 1508. A defendant must offer "evidence to counter or otherwise challenge the extensive government documentation of its costs." *Id.*

434. The Railroads' accounting attack was premised on general theories of cost accounting, not

environmental accounting as described in case law. The attacks ignored well established decisional precedent that validates EPA's CERCLA cost accounting procedures and protocols. The Railroads' accountant also ignored or refused to acknowledge the EPA's SCORES and CERCLA Superfund site accounting and cost documentation and methods. The entirety of Railroads' claims on EPA's accounting methodology are rejected.

435. A determination of liability does not depend on quantification of a plaintiff's response costs. *See Mottolo,* 695 F.Supp. at 630. Once the United States has shown that a release of a hazardous substance caused the incurrence of some response costs, the defendant is liable. *Id.*

G. *Governments Incurred Response Costs; Governments' Response is Consistent with the NCP*

436. In this case, releases or threatened releases of hazardous substances from the Arvin Site have caused the Governments to perform investigations of the Arvin Site and the groundwater underneath the Site and to incur other costs in responding to releases and threatened releases, evaluating a remedy and commencing implementation of the remedy.

437. EPA investigated to identify the nature and extent of contamination and containment remedies to address highly contaminated ground water in the A-zone.

438. EPA sought to protect the B-zone, which qualifies as a potential source of drinking water. The A-zone remedy faces technical challenges, but it is not arbitrary.

439. The Administrative Record delineates EPA's reasoning for selecting the interim A-zone excavation and capping remedy. Defendants' attacks on the science utilized do not provide contrary evidence that preponderates to justify second-guessing the EPA's scientists or to reject out of hand the EPA's technical decisions. Defendants have quarreled with the overall projected pump and treat remedy that could generate additional response costs of 20 million dollars. This remedy is not cast in stone. The site remains subject to technical review and ultimately to judicial review which will permit legal determination of the ultimate feasibility and non-arbitrariness of the final ultimate pump and treat remedy.

440. Some dispute exists about the availability of technical information presented by the defendants on the difficulty of remediating dense non-aqueous phase liquids, which was not in the administrative record. The DNAPL issue, which was recognized and addressed superficially by EPA, does not disable the proposed remedy, nor make it arbitrary, capricious or unlawful action at this stage of remediation.

441. The United States has incurred response costs of $7,809,683.46 as of June 30, 1997, not including interest or attorneys fees, for remedial actions in connection with the Arvin facility. These costs are fully documented by EPA's computerized cost recording system and the SCORES summary. The Railroad "cost expert" did not assist the Court because his opinion was based on accounting principles not applicable in CERCLA cost recovery. His testimony quibbled with the EPA's cost packages, documentation, and criticized the technical cost-recovery methology EPA utilizes. Those battles were fought and lost much earlier in CERCLA's history.

This approach lacked credibility and provides no basis to disallow EPA's claimed response costs.

441A. The Railroads, Shell, and DTSC have stipulated that DTSC has incurred documented response costs of $401,872.81 through March 31, 1998, not including interest and attorneys fees and costs, for response actions in connection with the Arvin facility.

442. The state and federal governments are entitled to recover all of their costs submitted and proved, which are fully documented and consistent with the NCP.

H. *Future Costs and Attorneys' Fees*

443. A prevailing government party may recover attorneys' fees in a CERCLA recovery action. *United States v. Chapman,* 146 F.3d 1166, 1175-76 (9th Cir. 1998) (CERCLA § 107(a)(4) permits the government to recover all reasonable attorney fees attributable to the litigation as a part of its response costs if it is the prevailing party); *see also Washington State Dept. of Transp. v. Washington Natural Gas Co.,* 59 F.3d 793, 800 (9th Cir.1995). Costs incurred by EPA after June 30, 1997, or by DTSC after March 31, 1998, except plaintiffs' attorneys' fees and costs and interest through trial, which shall be awarded as part of the recoverable costs associated with the entry of judgment, shall be treated as future costs. A declaratory judgment will be entered establishing the liability for future costs not inconsistent with the National Contingency Plan. Continuing jurisdiction is reserved over the case to address future issues about the necessity of the proposed ultimate remedy for the Site.

VIII. APPORTIONMENT

444. By apportioning CERCLA harm, a defendant limits its liability but still remains liable for some portion of the harm. *See State of Washington v. United States,* 922 F.Supp. 421, 429-30 (D.Wash. 1996) (defendants may limit liability based on harm each caused); *United States v. Fidelcor,* 1993 WL 276933 (E.D.Pa. Jul.21, 1993) (divisibility is a limitation of liability).

445. Congress intended that "traditional and evolving common law principles, guided by the Restatement (Second) of Torts [§ 433A]," are the basis for determination of the scope of liability under Section 107 of CERCLA. *See Matter of Bell Petroleum Servs., Inc.,* 3 F.3d 889, 895 (5th Cir.1993); *Monsanto Co.,* 858 F.2d at 171 n. 23; *Redwing Carriers, Inc. v. Saraland Apartments,* 94 F.3d 1489, 1512-13 (11th Cir.1996); *United States v. Alcan Aluminum Corp.,* 964 F.2d 252, 268 n. 26 (2d Cir.1993); *O'Neil v. Picillo,* 883 F.2d at 178; *State of Washington v. United States,* 922 F.Supp. at 425; *Akzo Coatings,* 881 F.Supp. at 1210; *Allied Corp. v. Acme Solvents Reclaiming, Inc.,* 691 F.Supp. 1100, 1116 (N.D.Ill. 1988).

446. Although CERCLA section 107(a) does not expressly require the imposition of joint and several liability, "[i]mposing joint and several liability carries out the legislative intent by insuring that responsible parties will fulfill their obligations to clean up the hazardous waste facility." *United States v. J.B. Stringfellow,* 661 F.Supp. 1053, 1060 (C.D.Cal.1987); see also *Bell,* 3 F.3d at 895 ("Although joint and several liability is commonly imposed in CERCLA cases, it is not mandatory in all cases.").

A. *Apportionment Generally*

447. A responsible defendant may avoid joint and several liability if the entire harm is (1) divisible and (2) capable of apportionment; each defendant bears the burden of proof on apportionment. *See United States v. Monsanto Co.,* 858 F.2d 160, 172 (4th Cir.1988), *cert. denied,*490 U.S. 1106, 109 S.Ct. 3156, 104 L.Ed.2d 1019 (1989); *United States v. R.W. Meyer, Inc.,* 889 F.2d 1497, 1507 (6th Cir.1989), *cert. denied,*494 U.S. 1057, 110 S.Ct. 1527, 108 L.Ed.2d 767 (1990); *O'Neil v. Picillo,* 883 F.2d 176, 178-79 (1st Cir.1989); *United States v. Chem-Dyne Corp.,* 572 F.Supp. 802, 810 (S.D.Ohio 1983). "It is critical that these two different contexts are not confused." *Stringfellow,* 661 F.Supp. at 1060; *see Redwing,* 94 F.3d at 1513.

448. In the first context, a court must determine whether "the harm resulting from two or more causes is indivisible, or whether the harm is capable of division or apportionment among separate causes. If there is a single harm that is theoretically or practically indivisible, each defendant is jointly and severally liable for the entire injury." *Id.* However, if there are distinct harms that are capable of division, then liability should be apportioned according to the contribution of each defendant. *See* Restatement (Second) of Torts §§ 433A, 875, 881 (1976). "The question whether the harm to the plaintiff is capable of apportionment among two or more causes is a question of law, and is for the decision of the Court in all cases." Restatement (Second) of Torts § 434 Comment d (1976).

449. The second aspect of "apportionment" arises after the first inquiry regarding the indivisibility of the harm. *See Stringfellow,* 661 F.Supp. at 1060. "If

the defendants are found to be jointly and severally liable, any defendant may seek to limit the amount of damages it would ultimately have to pay by seeking an order of contribution apportioning the damages among the defendants." *Id.* In this second apportionment context, "the guidelines of the Gore amendment should be used in determining whether damages should be apportioned." *Id.* (quoting *United States v. Stringfellow,* 20 ERC 1905, 1910 (1984)). The Court retains discretion in its application of equitable factors in apportioning damages in order to mitigate the hardships of imposing joint and several liability upon defendants who have only contributed a small amount to a potentially large indivisible harm. *See id.*

450. From the discretionary nature of the apportionment analysis, apportionment should not be a substitute for the exclusive third party defense. Section 107(a) of CERCLA expressly states that CERCLA liability is "subject only to the defenses set forth in subsection (b)." 42 U.S.C. § 9607(a). To completely avoid liability a defendant must meet the requirements of the third party defense. *See Levin Metals Corp. v. Parr-Richmond Terminal,* 799 F.2d 1312, 1316 (9th Cir.1986).

451. The divisibility of harm doctrine is consistent with the intent of Congress that "'traditional and evolving common law principles should define the scope of liability under CERCLA." *Redwing Carriers, Inc. v. Saraland Apartments,* 94 F.3d 1489, 1513 (11th Cir.1996) (quoting *Bell,* 3 F.3d at 895); *see O'Neil,* 883 F.2d at 178-79; *Monsanto,* 858 F.2d at 171 n. 23; *United States v. Chem-Dyne Corp.,* 572 F.Supp. 802, 805-08 (S.D.Ohio 1983). The starting point for divisibility of harm analyses in CERCLA

cases is the Restatement (Second) of Torts, which provides for the apportionment of damages among two or more parties when at least one is able to show either (1) "distinct harms" or (2) a "reasonable basis for determining the contribution of each cause to a single harm." Restatement (Second) of Torts § 433A (1965); *see Township of Brighton,* 153 F.3d at 318; *Bell,* 3 F.3d at 895;*Chem-Dyne,* 572 F.Supp. at 810; *Monsanto Co.,* 858 F.2d at 172. The usefulness of the Restatement depends upon the extent it is compatible with the provisions of CERCLA. *See O'Neil,* 883 F.2d at 179 n. 4 (describing the Restatement as "one source for us to consult"); *United States v. Hercules, Inc.,* 247 F.3d 706, 716 (8th Cir.2001).

452. The Governments concede that the Restatement approach must be tailored to fit the unique liability provisions of CERCLA. The Restatement provides that where "two or more causes combine to produce such a single result, incapable of division on any logical or reasonable basis, and each is a substantial factor in bringing about the harm, the courts have refused to make an arbitrary apportionment for its own sake, and each of the causes is charged with responsibility for the entire harm." Restatement (Second) Torts, § 433A, comment on subsection (2). While the Restatement approach indicates that a plaintiff must prove that each defendant was a "substantial factor" in causing a single harm, courts have not imposed this requirement in CERCLA cost recovery cases due to inconsistency with CERCLA's relaxed causation requirement. *See, e.g., O'Neil v. Picillo,* 883 F.2d at 179 ("While courts have generally looked to the Restatement for guidance, they have declined to place the burden of showing that defendants are 'substantial contributors' on the government, recognizing Congress' concern that cleanup

efforts not be held hostage to the time-consuming and almost impossible task of tracing all the waste found at a dump site."); *see also Matter of Bell Petroleum,* 3 F.3d 889, 901 (5th Cir.1993); *accord Alcan Aluminum Corp.,* 964 F.2d at 270.

453. Once liability has been established, the burden shifts to the defendant to demonstrate, by a preponderance of the evidence, that there exists a reasonable basis for divisibility. *See Township of Brighton,* 153 F.3d at 318; *O'Neil,* 883 F.2d at 182. "Divisibility generally limits the scope of, but does not entirely eliminate, CERCLA liability since the doctrine is essentially a defense only to joint and several liability." *United States v. Hercules, Inc.,* 247 F.3d 706, 717 (8th Cir.2001); *see also Control Data,* 53 F.3d at 934 n. 4; *Bell,* 3 F.3d at 895.

454. Proving divisibility is a "very difficult proposition," Control Data, 53 F.3d at 934 n. 4, and the Restatement recognizes that some harms, "by their nature, are normally incapable of any logical, reasonable, or practical division."Restatement (Second) of Torts § 433A cmt. to subsection (2) (1965), quoted in *Bell,* 3 F.3d at 896. When this is the case, the Restatement cautions against making an "arbitrary apportionment for its own sake." *Id.; see also United States v. Colorado & Eastern R.R. Co.,* 50 F.3d 1530, 1535 (10th Cir.1995) (noting that "the courts have been reluctant to apportion costs" and that "responsible parties rarely escape joint and several liability"); *O'Neil,* 883 F.2d at 183 (defendants hoping to escape joint and several liability must satisfy the "stringent burden placed on them by Congress"); *Alcan Aluminum Corp.,* 964 F.2d at 269 (substantial burden).

455. Apportionment in this case is exacerbated by defendants' "scorched earth," all-or-nothing approach

to liability. Neither acknowledged an iota of responsibility, in the case of Shell, for causing "releases of hazardous substances, and in the case of the Railroads, that any release of hazardous substance that required response occurred on Railroad parcel throughout the 13 year lease terms. Neither party offered helpful arguments to apportion liability. On the other hand, the Governments contend that contribution to the harm is indivisible and because the overwhelmingly responsible party, the Site 81% owner and sole operator, B & B is bankrupt, that both defendants are 100% jointly and severally liable. All parties thereby effectively abdicated providing any helpful arguments to the court and have left the court to independently perform the equitable apportionment analysis demanded by the circumstances of the case.

456. "When a defendant is successful in demonstrating a reasonable basis for apportionment, approaches to divisibility will vary tremendously depending on the facts and circumstances of each case." *Hercules,* 247 F.3d at 717. Evidence of divisibility focuses on determining the amount of harm caused by the defendant. *See Bell,* 3 F.3d at 903. The evidence supporting divisibility must be concrete and specific. *See United States v. Alcan Aluminum Corp.,* 892 F.Supp. 648, 657 (M.D.Pa.1995)*(Alcan III), aff'd,*96 F.3d 1434 (3d Cir.1996) (table).

457. Various factors determine whether a reasonable basis for divisibility exists. *See Township of Brighton,* 153 F.3d at 319. For instance, "distinct harms" are properly be regarded as separate injuries. *See* Restatement (Second) of Torts § 433A (1965); *Bell,* 3 F.3d at 895;*Hercules,* 247 F.3d at 717. Distinct harms may also be based on geographical considera-

tions, such as where a site consists of "non-contiguous" areas of soil contamination, *Akzo Coatings, Inc. v. Aigner Corp.*, 881 F.Supp. 1202, 1210 (N.D.Ind. 1994), *clarified on reconsideration*, 909 F.Supp. 1154 (N.D.Ind.1995), or separate and distinct subterranean "plumes" of groundwater contamination, *United States v. Broderick Investment Co.*, 862 F.Supp. 272, 277 (D.Colo.1994).

458. Most applicable here is that a "single harm" may be divisible because it is possible to discern the degree to which different parties contributed to the damage. *Id.* The experts' testimony show an indivisible slowly migrating plume of subterranean contaminants that result from releases of agricultural chemicals at the Site, predominately from the B & B parcel and with an incalculable contribution from the Railroad parcel, for 29 years through B & B operations and a 13 year period for the Railroads. The rail spur was owned and operated by B & B.

459. A division is proper where "it is clear that each [defendant] has caused a separate amount of harm, limited in time, and that neither has any responsibility for the harm caused by the other," such as where "two defendants, independently operating the same plant, pollute a stream over successive periods of time." *Bell*, 3 F.3d at 895. Single harms may also be "treated as divisible in terms of degree," based on the relative quantities of waste discharged. *Id.* at 895-96; *Hercules*, 247 F.3d at 718. This sort of divisibility may be provable even where wastes have become cross-contaminated and commingled, for "commingling is not synonymous with indivisible harm." *Alcan II*, 990 F.2d at 722; *see also Bell*, 3 F.3d at 903.

460. In *Bell*, for instance, the Fifth Circuit held that a single plume of contamination could be

apportioned where (1) the plume was contaminated with the same hazardous substance by (2) the successive chrome plating operations of three operators, and (3) where business records existed, though incomplete, to allow an approximation of the contributions of each operator. 3 F.3d at 904.

461. Where causation is unclear, courts should not hasten to "split the difference" in an attempt to achieve equity. *See Township of Brighton,* 153 F.3d at 319. "If they are in doubt, district courts should not settle on a compromise amount that they think best approximates the relative responsibility of the parties." *Id.* "In such circumstances, courts lacking a reasonable basis for dividing causation should avoid apportionment altogether by imposing joint and several liability." *Hercules,* 247 F.3d at 718-19; *Township of Brighton,* 153 F.3d at 319.

462. This is a classic "divisible in terms of degree" case, both as to the time period in which defendants' conduct occurred, and ownership existed, and as to the estimated maximum contribution of each party's activities that released hazardous substances that caused Site contamination.

B. *Equitable Apportionment*

463. While § 113(f)(1) directs courts to allocate cleanup costs between responsible parties "using such equitable factors as the court determines are appropriate," it does not limit courts to any particular list of factors. The statute's expansive language instead affords a district court broad discretion to balance the equities in the interests of justice. *See Environmental Transp. Sys., Inc. v. ENSCO, Inc.,* 969 F.2d 503, 509 (7th Cir.1992) ("[T]he language of [CERCLA § 113(f)] clearly indicates Congress' intent

to allow courts to determine what factors should be considered in their own discretion without requiring a court to consider any particular list of factors."); *United States v. R.W. Meyer, Inc.*, 932 F.2d 568, 571 (6th Cir.1991) ("The trial judge was well within the broad discretion afforded by the statute in making the apportionment he did.").

"At the allocation phase, the only question is the extent to which a defendant's liability may be offset by the liability of another; the inquiry at this stage is an equitable one and courts generally take into account the so-called 'Gore factors.'" *Hercules,* 247 F.3d at 718; *see* 42 U.S.C. § 9613(f) (providing that a court "may allocate response costs among liable parties using such equitable factors as the court determines are appropriate"); *Township of Brighton,* 153 F.3d at 318; *Control Data,* 53 F.3d at 935.

The "Gore factors" include:

> 1. the ability of the parties to demonstrate that their contribution to a discharge[,] release or disposal of a hazardous waste can be distinguished;
>
> 2. the amount of the hazardous waste involved;
>
> 3. the degree of toxicity of the hazardous waste involved;
>
> 4. the degree of involvement by the parties in the generation, transportation, treatment, storage, or disposal of the hazardous waste;
>
> 5. the degree of care exercised by the parties with respect to the hazardous waste concerned, taking into account the characteristics of such hazardous waste; and

6. the degree of cooperation by the parties with Federal, State, or local officials to prevent any harm to the public health or the environment.

A & F Materials Co., 578 F.Supp. at 1256;*Township of Brighton,* 153 F.3d at 318-19.

C. *Apportionment to Insolvent B & B*

464. B & B is insolvent and nas not defended in this case. Its default has been entered.

465. A court may decline to apportion an indivisible harm as a matter of discretion in exceptional cases, "in which injustice to the plaintiff may result." Restatement (Second) Torts, § 433A, comment h on subsection (1). An example provided is where "one of two tortfeasors is so hopelessly insolvent that the plaintiff will never be able to collect from him the share of the damages allocated to him." *Id.* Plaintiffs contend the two defendants should be held jointly and severally liable for all of B & B's orphan share.

466. Congress was well aware of the need for discretion in apportioning harm in CERCLA cases, where large orphan shares often exist. *See United States v. Kramer,* 953 F.Supp. 592, 598 (D.N.J.1997). For example, H.R. 7020, the 1980 House version of CERCLA, which was not enacted into law, originally contained a *mandatory* apportionment provision allowing defendants to apportion harm among themselves, but requiring the court to do so "to the maximum extent practicable" if the defendants could not. 126 Cong. Record D1356, H9459 ("To the extent apportionment is not established under subparagraph (A), the *court shall apportion* the liability, to the maximum extent practicable . . .") (emphasis added). Congressman Gore introduced an amendment to eliminate mandatory apportionment. The

Gore Amendment provided that if the defendants could not apportion harm between themselves, then the "court *may apportion* the liability among the parties where deemed appropriate." 126 Cong. Record H9366, H9366 (emphasis added). Congressman Gore explained that the Amendment was designed to avoid the case where "a major contributor could seek to establish the culpability of other defendants—although he would not quantify the harm contributed by each-to enlarge the pool of liable parties and thereby reduce each defendant's cost obligation."126 Cong. Record D1356, H9464. Congressman Gore stated that the mandatory apportionment scheme "would also enable a defendant to disregard totally any effort to locate other defendants . . . and would effectively limit a single defendant's liability even in face of skimpy proof." *Id.* Congressman Gore noted the "amendment would also make this bill more in tune with the common law by making the apportionment under section 2(B) discretionary on the part of the court." *Id.*

467. In support of the Gore Amendment, Vermont Congressman, Jeffords, emphasized the need for courts to retain the discretion available under common law to avoid the result of apportioning a large share of the harm at a site to a bankrupt party:

> Mr. Chairman, as a cosponsor of the Hazardous Waste Containment Act I wish to commend the fine work of Mr. Gore, Mr. Florio, Mr. Madigan, and other Members involved in the formulation of a compromise solution to the liability questions in H.R. 7020.
>
> * * *
>
> I also wish to record my support for the second amendment being offered by Congressman Gore

which would affirm the discretion of courts to apportion liability among solvent parties who are held jointly and severally liable for a release of hazardous waste. While the intent of the unamended bill may have been in conformity with the prevailing common law, the language of H.R. 7020 is in need of revision. The prevailing common law does not require courts to apportion liability among defendants who are held jointly and severally liable where the proportion of harm attributable to a particular defendant has not been established. The imposition of mandatory apportionment could result in attempts by the parties liable for a release of hazardous waste to allocate a large portion of the liability to insolvent defendants. As the discussion on this floor will indicate, the total costs being recovered under this act are intended to be recovered from among the solvent liable parties. The adoption of the second amendment offered by Mr. Gore would eliminate mandatory apportionment of liability and clarify the intent of this House that any apportionment of liability is to be among solvent parties.

126 Cong. Record D1356, H9467.

468. The House ultimately enacted the Gore Amendment on September 30, 1980 as part of the "Hazardous Waste Containment Act of 1980." The Hazardous Waste Containment Act of 1980, like the Senate Superfund Bill, S.1431, contained an express statement that CERCLA liability is joint and several. *State of New York v. Shore Realty Corp.*, 759 F.2d 1032, 1042 n. 13 (2d Cir.1985). The compromise that ultimately became CERCLA deleted any reference altogether to joint and several liability to give federal

courts' flexibility if a particular case did not warrant the imposition of joint and several liability. *Id.* In 1986, Congress again rejected an attempt to impose a mandatory apportionment scheme on federal courts, (*see*131 Cong. Record S11,586) and instead enacted statutory provisions to speed settlements and ameliorate the potentially harsh effects of joint and several liability. *See, e.g.*,42 U.S.C. §§ 9622(e)(2) & (g). Congress also enacted a statutory claim for contribution among potentially responsible parties. 42 U.S.C. § 9613(f).

469. In *Matter of Bell Petroleum Servs., Inc.,* 3 F.3d 889 (5th Cir.1993), recognizes that the Restatement approach of declining to apportion harm in exceptional circumstances of insolvency of one of the defendants should not necessarily apply in CERCLA cases brought by the United States, because the "deck is already stacked in favor of the government." *Id.* at 901 n. 13. This dicta in *Bell Petroleum,* is incorrect for several reasons. First, the notion that apportionment should be applied "to even" the playing field in CERCLA litigation ignores that fact that Congress expressly enacted CERCLA to provide the federal government with effective tools to cleanup hazardous waste sites and to easily recover costs of response to replenish the Superfund. *See Anspec v. Johnson Controls, Inc.,* 922 F.2d 1240, 1247 (6th Cir.1991); H.R. Rep. No 1016, 96th Cong.2d Sess, pt. 1, at 33, *reprinted in*1980 U.S.Code Cong. & Admin. News 6119, 6136 ("The purpose . . . is to provide mechanism for prompt recovery of monies expended for the costs of such action . . . and to induce such potentially liable persons to pursue appropriate environmental response actions voluntarily."). The broad liability provisions of CERCLA ensure that those associated with a hazardous waste facility, as

opposed to the taxpayers, will shoulder the financial burden of cleaning up hazardous waste sites. *Anspec,* 922 F.2d at 1247. In addition, one of the reasons Congress enacted CERCLA was the perception that common law liability schemes were inadequate. *See National Ass'n of Mfrs. v. United States Dept. of the Interior,* 134 F.3d 1095, 1105, 1112 (D.C.Cir.1998); *State of Ohio v. Dep't of the Interior,* 880 F.2d 432, 455 & n. 38 (D.C.Cir.1989). Nothing could be more inconsistent with Congressional intent than to interpret CERCLA to be narrower than common law as expressed in the Restatement.

470. The idea that a defendant has the automatic right to apportion harm to the prejudice of a governmental plaintiff also runs counter to Congress's clearly expressed intent in the 1986 SARA amendments relating to settlement. The settlement provisions Congress added in 1986 were intended to encourage prompt settlement of Superfund liability to expedite cleanup and reduce litigation costs. *See B.F. Goodrich,* 99 F.3d at 521; *In Re Cuyahoga Equip. Corp.,* 980 F.2d 110, 119 (2d Cir.1992); *Aetna Cas. and Sur. Co., Inc. v. Pintlar Corp.,* 948 F.2d 1507, 1517 (9th Cir.1991); *United States v. Akzo Coatings of America, Inc.,* 949 F.2d 1409, 1450 (6th Cir.1991); *Fairchild Semiconductor Corp. v. EPA,* 984 F.2d 283, 287 (9th Cir.1989); *In re Charter Co.,* 862 F.2d 1500, 1503 (11th Cir.1989).

471. The effect of giving a defendant an automatic right to an apportioned share (*i.e.,* the mandatory apportionment twice rejected by Congress) could hinder CERCLA settlements. Here, the predominantly responsible party, B & B, is insolvent. Although authority exists to reallocate B & B's orphan share to the other responsible persons according to Section

113(f)(1) of CERCLA, 42 U.S.C. § 9613(f)(1), to do so would manifestly inequitable. *See The Pinal Creek Group v. Newmont Mining Corp.,* 118 F.3d 1298, 1302 (9th Cir.1997) ("Under § 113(f)(1), the cost of orphan shares is distributed equitably among all PRPs"), *cert. denied,*524 U.S. 937, 118 S.Ct. 2340, 141 L.Ed.2d 711 (1998); *cf. Ekotek Site PRP Comm. v. Self,* 1 F.Supp.2d 1282, 1293 (D.Utah 1998) ("In a section 113 action, responsibility for "orphan shares"-that is, "those shares of the waste responsibility which are attributable to PRPs who either are insolvent or cannot be located or identified"—should be *equitably* apportioned among all PRPs.") (emphasis added). The concept that a passive owner of a contiguous parcel, not representing more than 19% in area of a CERCLA site, operated less than 44% of the time, where substantially smaller volumes of hazardous substance releases occurred, should be strictly liable for the entire site remediation, because no other responsible party is judgment-worthy, takes strict liability beyond any rational limit.

D. *Railroads' Divisible Harm*

472. In the present case, the harm is a single harm which consists of contaminated soil at various locations and depths around the Site and one mass (plume) of contaminated groundwater. Although scientific disagreement was presented to question causation, a large contaminated plume of groundwater, emanating from agricultural chemical releases over twenty-eight years at the Site, underlies the facility. Soil beneath the Site is contaminated and capable of releasing chemicals of concern. Some part of the contaminant releases emanated from the Railroad Site caused by storage, spilling, leaks and washing activities that released agricultural chemi-

cals from application rigs and smaller tanks and containers parked and stored on the Railroad parcel. The existing plume presents a cognizable, although not specifically quantifiable, threat of leaching and diffusing to lower levels of potential drinkable groundwater that are not yet seriously contaminated, and beyond that, to a municipal water well of the City of Arvin, which is some 1200 feet southwest from the Site. Even the remaining soil contamination presents a single harm because any contaminants in the soil are capable of leaching into the common plume underlying the two parcels. *Bell Petroleum* held that a single plume of contamination could be apportioned where: (1) the plume was contaminated with the same hazardous substance, by (2) the successive chrome plating operations of three operators, and (3) where business records existed, although incomplete, to allow an approximation of the contributions of each operator. 3 F.3d at 904.

473. Absent other evidence, an owner is deemed to have caused the contamination that exists on its parcel or that is otherwise associated with the owned parcel, by virtue of the operator's activities. *See Northernaire Plating Co.*, 670 F.Supp. at 748 (harm is presence of hazardous substances and owner is deemed to have caused harm for purposes of apportionment), *aff'd, R.W. Meyer, Inc.*, 889 F.2d at 1507-08 (adopting reasoning of district court); *see also Weyerhaeuser Co. v. Koppers Co.*, 771 F.Supp. 1420, 1425-26 (D.Md.1991). The "act" which renders an owner, such as the Railroads, "responsible" for the contamination is not actual involvement in the disposal of hazardous waste, but simply their ownership of the property where a facility operated at the time of the disposal. *See* 42 U.S.C. § 9607(a)(2); *see also Nurad, Inc. v. William E. Hooper & Sons Co.*, 966

F.2d 837, 846 (4th Cir.), *cert. denied,*506 U.S. 940, 113 S.Ct. 377, 121 L.Ed.2d 288 (1992).

474. The evidence shows that the Railroad parcel is approximately 19.1% of the surface area of the total site. *See* FOF at ¶ 3 (Railroad parcel approximately 0.9 acres; B & B's Arvin plant-including leased Railroad parcel-is 4.7 acres). The contributions from spills and releases from the Railroad parcel are significantly less than from the B & B parcel, because the Railroad parcel was only used for vehicle and equipment storage, washing and limited loading-unloading of agricultural chemicals, not active operations or maintenance.

475. The total length of the B & B-Railroad lease, 13 years, is 45% of the B & B total of 29 years of operations at the Site from 1960 to 1989.

476. Relatively fewer activities that could result in releases were conducted on the Railroad parcel. Daily operations that resulted in releases of hazardous substances occurred on the B & B parcel. Past releases at the Railroad parcel could not have contributed more than ten (10%) of the overall site contamination given the fact that the predominant activities conducted on the Railroad parcel through the years were storage and some washing and rinsing of tanks, other receptacles, and chemical application vehicles. Mixing, formulating, loading, and unloading of ag-chemical hazardous substances, which contributed most of the liability causing releases, were predominantly carried out by B & B on the B & B parcel.

477. Although no party has specifically documented the relative contributions of contamination from either parcel, it is indisputable that the over-

whelming majority of hazardous substances were released from the B & B parcel. The sump and pond on the B & B parcel are the primary contributors to Site contamination. As demonstrated by the Railroads, the relative mass or volume of chemicals released on the B & B parcel and the Railroad parcel, respectively, is an appropriate factor to take into account in determining the Railroads' apportionable share of the divisible harm. *See Bell,* 3 F.3d at 903-904.

478. Releases of agricultural chemicals to the ground on the Railroad parcel during the lease terms more likely than not contributed to the contamination. Such releases justifiably caused the Railroad parcel to be included in the Site and to be studied, analyzed, and remediated.

Release Activities

479. The evidence is uncontradicted that the Site was graded so that surface run-off drained to the waste pond on the southeast corner of the B & B parcel. The Governments' evidence does not establish by a preponderance that the chemical releases contaminated the groundwater under the Railroad parcel through focused infiltration. But is it plausible some surface spills of chemicals on the Railroad parcel reached the waste pond by down-gradient surface water flow. A small spill of 1, 2-DCP could cause substantial groundwater contamination, even if traces of 1, 2-DCP would disappear in the subsurface.

480. Detecting contamination around fixed point sources is easier than detecting the traces of numerous spills that occurred at random, fluctuating locations. The burden to show an appropriate basis for apportionment is heavy. Here, the Railroad parcel

was 19% of the total Site. The 13 year time period over which releases occurred on the Railroad parcel and the relatively limited extent of hazardous release-producing activities on the Railroad parcel only partly contributed to the site contamination and need for response.

481. B & B stored containers of Weed Killer D (dinoseb) in 55-gallon drums and 5 gallon cans on a concrete apron along the warehouse wall on Railroad parcel. Merryman at 31-32. B & B stored the Weed Killer D outside because if the drums and cans leaked, it was "real messy." *Id.* at 31-32, 101. Moreover, B & B did not store Weed Killer D in the warehouse because it was a low cost product "that nobody . . . would steal."

482. Before occasional company barbecues, B & B employees emptied the warehouse, where cans of Nemagon, Fumazone and Round-Up were stored, and swept the concrete floor and hosed it out, washing the water with ag-chemicals present on the floor out of all three doors of the warehouse, including the doors that were on the west side of the warehouse, contiguous to the Railroad parcel. *Id.* The rinsate was washed onto the ground, including onto the Railroad parcel.

483. B & B retrieved used cans of pesticide products from growers' fields and stored the used, unrinsed cans for as long as a year, before crushing them and sending them to a landfill. Brown at 829; Merryman at 113. B & B stored used 55 gallon drums of dinoseb on the Railroad parcel. *Id.* at 31.Dinoseb has a distinctive dark yellow-orange color when it makes contact with the ground. Merryman at 74. Mr. Merryman, a B & B employee from 1972 to 1981, testified that there were always "small leaks." *Id.* at

75. Every two or three months the cans would be collected and crushed. Crushing the cans near the UN-32 tank caused residual liquid to spill on the ground. Merryman at 62-65. The wet areas were two to three inches deep and as much as six feet across. *Id.* at 100.

484. Shell Nemagon, which contained DBCP, was kept in 30-gallon drums and 5-gallon drums. *Id.* at 28. After the 30-gallon Nemagon drums were emptied, they were stored on the Railroad parcel. *Id.* at 28-29. Residual contents of used Nemagon containers leaked onto the ground. *Id.* at 97-99.After the 5-gallon cans were emptied, the cans would be brought back in the yard and stored at the can storage area, marked "D" on Exhibit G-100. *Id.* at 29-30. The 5 gallon empty cans were transferred to the Railroad parcel, where the empty 30-gallon Nemagon drums were stored, because the small can storage area became flooded when it rained. *Id.* at 30.

485. D-D rigs were parked on Railroad parcel. *Id.* at 15-16, 81, 113-14; Brown at 1003. Filters were checked 20 times a month, at least. Merryman at 113. The D-D rigs were not usually washed out unless they became full of sediment. *Id.* at 14, 16, 110.D-D rigs had a plastic or "corlon" sight gauge tube on the end of the tank. *Id.* at 14-15; Brown at 822. Exposure to sunlight made these tubes brittle. Brown at 822. Sight gauges regularly broke. A hard wind would cause breakage of brittle gauges. When this occurred the contents of a half-filled tank would slowly spill on the ground through the sight gauge. Merryman at 104; Brown at 823. B & B was not always "quick enough to replace" sight gauges and "would lose material." Brown at 822.

486. If the D-D nurse tanks were going to be idle, they would be washed out and parked on the Railroad parcel. Sometimes too many nurse tanks were lined up for washing, so the D-D nurse tanks were parked west of the warehouse on the Railroad parcel.

487. The B & B parcel was graded towards the southeast pond. *Id.* at ¶ 50.After 1960, the sump was connected to the pond. *Id.* at ¶ 51.

488. The amount of contaminants that entered the sump, including D-D's constituent parts, cannot be exactly quantified. *Id.* at ¶¶ 89-92. However, the Railroads' several liability may be roughly calculated. The Railroad parcel is 0.9 acres. *Id.* at 3. The entire site is 4.7 acres. The Railroad parcel is 19% of the Site. The Railroads leased their parcel to B & B for 13 years, 45% of B & B's operations of the Site. The volume of hazardous substance releasing activities on the B & B property is at least ten times greater than any Railroad parcel releases. Nemagon and dinoseb were stored on the Railroad parcel and D-D rigs and idle D-D nurse tankers were parked on the Railroad parcel. Nemagon and dinoseb caused contamination of the site. Estimates are that these two chemicals contributed to 2/3 of overall Site contamination. While there is some D-D contamination as a result of D-D rig and nurse tank storage on the Railroad parcel, the slight contamination is offset by the fact that the Site is graded towards the southeast pond and the levels of chemical contamination on the B & B parcel are substantially higher than the reported detections on the Railroad parcel.

489. B & B first began operations at the Site in 1960, but did not lease the Railroad parcel until 1975. *Id.* at ¶¶ 1 & 4. B & B ceased its operations by 1989. The time period of operations when contamina-

tion was released from the Railroad parcel is less than half the time releases occurred from the B & B parcel. Substantially greater daily operations of loading, unloading, washing, rinsing, and storage were conducted on the B & B parcel. Taking this into account if 19% is multiplied by 0.45 (13 years of storage on Railroad parcel use/28 years of B & B operations) and multiplied by 2/3 (dinoseb and Nemagon contamination) the relative figure of 6% is reached. There is no evidence to quantify the difference in volume of the releases; however, based on the considerable evidence of the relative levels of activity and number of releases on the two parcels, the Railroad parcel could not have contributed to more than 10% of the volume or mass of the overall site contamination resulting from B & B's hazardous substance-release producing activities as the sole site operator and owner of over 80% of the site. Allowing for calculation errors up to 50%, the Railroads under no theory of release of contaminants can be liable for more than 9% of the total Site CERCLA response costs including interest and attorneys' fees. The Railroads agree they are liable for $489,727.00, the costs the United States incurred in connection with its investigation of releases on Railroad parcel. In addition, the Railroads agree that they are liable for the future cost of paving the Railroad parcel with asphalt, as required by the EPA in the Record of Decision.

E. *Shell's Divisible Harm*

490. Shell did not present evidence how its products' contribution to the contamination at the Arvin facility can be apportioned. Spills were inherent in the common carrier deliveries that Shell arranged for and occurred in the course of every delivery. *See* FOF

at ¶¶ 131-142. Spills were an expected incident of D-D sales, as evidenced by a spillage allowance in Shell's contract with B & B. Despite the use of buckets to catch spills, releases of a few cupfuls to five gallons of D-D frequently spilled to the ground in the unloading operation. *See id.* at ¶ 134.Spills of D-D from hoses and couplings during the D-D delivery process on the B & B parcel were common occurrences. *See id.* at ¶ 147.

490A. Dinoseb is a product manufactured by Dow, not Shell. In 1983 there was a spill of dinoseb in the drum storage area that resulted in a "hot spot" of contamination. The EPA conducted a removal operation to clean up this hot spot, and spent $1.3 million in that project. That removal action was intended to remediate only the dinoseb that contaminated the drum storage area, not the entire site, and it did not involve any Shell product. Shell did not manufacture dinoseb or ship it to the Arvin facility, and had no responsibility for the spill of the chemical. The court finds that the dinoseb hot spot clean up action is a separate harm and is divisible from other clean up efforts at the site and capable of apportionment. Therefore, Shell is not liable for any part of the $1.3 million cost of that clean up action.

491. To roughly calculate the D-D spills resulting from the D-D deliveries, B & B's D-D purchases from 1972, 1973, 1979, 1980, 1982 and 1983 are averaged to determine average D-D purchases during the twenty-three year period that Shell sold agricultural chemicals to B & B at the Site. Although B & B continued to purchase D-D in 1984, 1984 is not included in the calculations because the amount of D-D estimated to be purchased that year, 26,000 gallons, is so significantly less than in the other years

as to be statistically aberrational. Mr. Brown testified the common carriers that delivered Shell's D-D were 4,000 gallon tanker trucks. *Brown,* 988. However, according to Mr. Haverland, these common carriers were 5,000 gallon trucks. Haverland at 2212. To simplify calculations, the common carrier is assumed to have 4,500 gallon capacity. It is further assumed that, on average, three gallons spilled during every delivery. The average delivery load per year is reached by dividing total annual D-D purchase, 122,390 gallons, by 4,500 gallons: 27 loads of D-D. To calculate the amount of spills caused by deliveries of Shell's D-D to the Site over a twenty three year period: 3 gallons x 27 deliveries x 23 years = 1,863 gallons of D-D. The deliveries resulted in spills of 81 gallons per year. As a result of the D-D spilled during delivery, the actual amount delivered was 122,309 gallons per year (122,390 gallons-81 gallons = 122,309 gallons).

492. The transfer of D-D from bulk storage tanks, located on B & B parcel, to bobtails resulted in leaks and spills on a daily basis. *Id.* at 137.Bobtails were trucks with 1,800 to 2,000 gallon tanks that were used to transport D-D over the roads to the nurse tanks. *Id.* at ¶ 36.During the busy D-D season, tanks were not washed except at night. *Id.* at ¶ 91-92. Assuming that 60% of the total D-D amount purchased was transferred to bobtails and 40% of the total D-D was transferred to D-D rigs, the bobtails carried a total D-D amount of 73,385 gallons. A D-D bobtail load is calculated by dividing 73,385 gallons by 1,900 gallons (the average amount a bobtail truck carried): 39 bobtail loads per year. The spills are not quantified. To calculate spills, it is assumed that a spill ranged from a cup to a quart. To determine the D-D spills that resulted from the transfer of D-D from

the bulk storage tanks to the bobtails: 39 bobtail loads x 3 cups x 23 years = 2,691 cups => 168 gallons of D-D. Transfer of D-D from bulk storage tanks to bobtails resulted in a release of 7 gallons of D-D per year. The actual D-D amount that was transferred to the nurse tanks was 73,385 gallons (73,385 gallons-7 gallons = 73,378 gallons).

493. Spills occurred when the D-D bobtails were washed out because about five to ten gallons of D-D remained and could not be pumped out. *Id.* at ¶¶ 89-90.To calculate the spills from the bobtail washing, it is assumed that the bobtails were washed out 70% of the time. To determine the D-D spills from the bobtail washing: 39 bobtail loads x 70% x 7.5 gallons x 23 years = 4,709 gallons of D-D. Rinsing the bobtails released spills of approximately 205 gallons per year.

494. D-D spills of a pint or quart also occurred when the D-D nurse tank filters were checked prior to use. *Id.* at 133-34. Nurse tanks were four-wheeled mobile tanks that were generally of two sizes: 2,000 and 2,600 gallons. *Id.* at 31.To simplify the calculations, the average of the two sizes, 2,300 gallons, is used. The number of nurse tank loads is calculated by dividing 73,378 gallons (the D-D amount in the nurse tanks) by 2,300 gallons: 32 annual nurse tank loads. The D-D spilled over 23 years as a result of the nurse tank filter checks: 32 loads x 3 cups x 23 years = 2,208 cups => 138 gallons. The spills resulting from the D-D tank filter checks amounted to 6 gallons per year.

495. Spills also occurred when B & B employees rinsed out nurse tanks at the wash rack. *Id.* at ¶ 32.The nurse tanks were not washed if they were sent back to the fields the next day with D-D. *Id.* To

determine spills that occurred as a result of the washing, it is assumed that the nurse tanks were not washed out 70% of the time and that similar to the bobtail trucks, 5-10 gallons remained in the nurse tank and could not be pumped out prior to the wash. The amount of D-D spilled as a result of nurse tank washing: 32 nurse tank loads x 70% x 7.5 gallons x 23 years = 3,864 gallons of D-D. Rinsing the nurse tanks released approximately 168 gallons of D-D per year.

496. Spills of a quart or less occurred as a result of checking filters on D-D rigs. *See id.* at ¶ 23.D-D rigs were 500 gallon or 600 gallon tanks mounted on two-wheeler trailers. *Id.* at 121. Filters were checked 20 times a month for four months. *Id.* at ¶ 24.D-D spills also occurred when the sight gauges on the D-D rigs broke and B & B failed to quickly replace them. *Id.* at ¶ 29.D-D spills from broken sight gauges cannot be determined; however, D-D spills from filter checks can be estimated. It is assumed that 48,924 gallons of D-D, 40% of the D-D amount B & B purchased, were transferred to D-D rigs. The number of D-D rig loads is calculated by dividing 48,924 gallons by 550 gallons (the average D-D amount held by the D-D rig): 89 D-D rig loads per year. The amount of D-D spills caused by the D-D filter checks: 89 D-D rig loads x 2 cup (D-D spill) x 80 checks (checks per year) x 23 years = 327,520 cups => 20,470 gallons of D-D. The spills resulting from the D-D filter checks amounted to approximately 890 gallons per year.

497. The evidence does not preponderate that after delivery to storage tanks that Shell had operational control over B & B's handling of D-D and other Shell chemicals at the Site to justify holding Shell liable for ongoing spills and leakage, except in the delivery-unloading-transfer process.

498. The percentage of D-D spills resulting from Shell deliveries is calculated by dividing 1,863 gallons (the D-D spilled through Shell controlled deliveries) by 31,212 gallons (the total amount of D-D spills) to equal approximately 6%.

499. Shell is severally liable for 6% of the total site recovery costs including interest and attorney' fees. A dollar adjustment will be made to deduct from these amounts, 6% of the $1.3 million attributable to dinoseb cleanup at the Arvin site.

F. *Equitable Apportionment among the Railroads and Shell*

500. Equitable apportionment of the Governments' costs must be imposed on the Railroads and Shell Oil Company in amounts equal to their pro rata to hazardous releases or by virtue of the Railroads' ownership of part of the Site.

1. *Railroads' Apportioned Share*

501. The Railroads knew that B & B distributed chemicals and used the leased Railroad parcel as part of its total agricultural-chemical operations. On the Railroad parcel, B & B parked fertilizer rigs and stored such hazardous chemicals as Weed Killer D (dinoseb) and used pesticide cans. The Railroads inspected the Arvin Site and knew that leaks and spills of these chemicals were a common and expected part of B & B's operations. From the time of the executed lease in 1975, to the cessation of B & B's operations in 1989, the amount of leaked hazardous waste on the Railroad parcel cannot be specifically quantified. Nor can the causative effects of contaminant releases over the Railroads' portion of the Site be determined with certainty.

502. Despite their knowledge of potential harm to the environment, the Railroads took minimal steps to attempt to avoid or contain B & B's spills and leaks of hazardous chemicals on the Railroads' parcel. In 1984, the Railroads required B & B to execute a supplemental agreement containing an environmental indemnity for the Site, which shows the Railroads' knowledge of and intent to avoid responsibility for environmental hazards at an agricultural chemical storage and formulating site. The agreement required B & B to periodically furnish the Railroads with satisfactory proof that B & B had complied with all applicable environmental laws. There is no evidence the Railroads ever did so. The Railroads further required B & B to indemnify the Railroads for any environmental harms for noncompliance with applicable environmental storage and disposal laws.

503. The supplemental agreement appears to be an attempt by the Railroads to avoid potential liability by "looking the other way" as to environmental harms caused by B & B. "[P]ersons cannot escape liability by 'contracting away' their responsibility or alleging that the incident was caused by the act or omission of a third party." *New York v. General Elec. Co.*, 592 F.Supp. at 297. The Railroads are a sophisticated landowner with full knowledge of environmental risks produced by the operations of B & B, an agricultural chemical dealer, direct seller, and applicator. The Railroads provided no satisfactory proof that their tenant, B & B, was in compliance with all applicable environmental laws in B & B's use of the leased premises. To the contrary, the testimony at trial shows that B & B was chronically sloppy and openly and continuously in violation of several environmental handling and disposal laws. The Railroads

have no evidence showing they took any steps which would entitle them to further credit in the apportionment process.

504. While the Railroads did not supply the chemicals brought onto the Arvin facility, the Railroads stood by and allowed the contamination to occur and to continue. By everyone's account, B & B was a sloppy operator. As the lessor-land owner, the Railroads had a responsibility to ensure that all activities affecting their leased parcel complied with all applicable environmental laws. The 1984 agreement, that delegated to B & B all responsibility for environmental compliance, does not relieve the Railroads from their responsibility as the landowner. From a CERCLA standpoint, the private contract for indemnity is irrelevant.

505. In the same way the Railroads stood by when the EPA listed the Railroad parcel as part of the Arvin NPL facility, the Railroads stood by as B & B continued to contaminate the Site through the lease terms. The Railroads are severally liable for 9% of the total Site response costs, which amount to $702,871.51 in EPA costs as of June 30, 1997, and $36,168.55 in DTSC costs as of March 31, 1998, not including interest and attorneys' fees. $489,727.00, the cost the United States incurred in connection with its investigation of releases on Railroad parcel is necessarily included in the total amount. The Railroads concede they are liable for the future cost of paving the Railroad parcel with asphalt, as required by the EPA in its Record of Decision, this is covered by the declaration of liability for future costs.

2. *Shell's Apportioned Share*

506. For over twenty years, Shell "arranged for" the sale for profit of D-D with actual knowledge that

D-D would spill and be released into the soil during the delivery and unloading process. With each delivery to the Arvin site, a few cup-fulls to five gallons of D-D spilled to the ground and were released to the environment. Shell knew that spills and leaks were inherent in the unloading process. Corroboration of this fact is that some of Shell's contracts with B & B provide a spillage allowance. Like the Railroads, Shell also attempted to transfer to B & B by contract, Shell's potential environmental liability for these inevitable spills and leaks. The characterization of the spill allowance as a "pricing" strategy to meet completion is not persuasive. As part of its "Conditions of Sale" of D-D, Shell required B & B to unload the D-D and to indemnify Shell for any harms resulting from the D-D's transfer and storage to the bulk storage tank.

Unlike the Railroads, however, Shell attempted to minimize the spills and leaks inherent in the delivery process. In 1978, Shell distributed a manual to all its distributors making several recommendations of how spills and leaks were best handled. Shell also instituted a "Bulk Storage Facilities" Program for all of its distributors requiring environmental compliance with all applicable environmental laws. Inspections and recommendations, particular to each site, were a regular part of the program. Shell's mitigating efforts although commendable are insufficient to avoid liability. Shell is liable for 6% of the total response costs, minus $1.3 million that was spent by EPA cleaning the dinoseb hot spot, which amount to $390,581.01 in EPA costs as of June 30, 1997, and $24,112.37 in DTSC costs as of March 31, 1998, not including interest and attorneys' fees.

G. *Shell's Apportioned Share of the Railroads' Response Costs.*

507. The Railroads spent $3,057,700 in response costs in connection with their remedial work at Arvin. The Railroads demonstrated that $2,607,318 of those costs were incurred in response to EPA Administrative Order 91-6, and were necessary, reasonable, and consistent with the NCP. The Railroads are entitled to 6% of their response costs, or $156,439.08, plus interest, from Shell.

IX. CONCLUSION

For the foregoing reasons, judgment shall be entered for the United States in the amount of $ 702,871.51 plus interest against the Atchison Topeka & Santa Fe Railway and the Southern Pacific Transportation Company, and in the amount of $390,581.01 plus interest against Shell Oil Company which represents those Defendants' respective several shares of the total CERCLA response costs incurred by EPA as of June 30, 1997.

For the same reasons, judgment shall be entered for the Department of Toxic Substances Control in the amount of $36,168.55 plus interest against the Atchison Topeka & Santa Fe Railway and Southern Pacific Transportation Company, and in the amount of $24,112.37 plus interest against Shell Oil Company which represents those Defendants' respective several shares of the total CERCLA response costs incurred by DTSC as of March 31, 1998.

Judgment also shall be entered for the Atchison Topeka & Santa Fe Railway Company and Southern Pacific Transportation Company in the amount of $154,439.08 plus interest against Shell Oil Company, which represents Shell's apportioned share of the

Railroads' costs incurred in response to EPA Administrative Order 91-6.

Declaratory judgments shall be entered in favor of EPA and DTSC, respectively, and against the Railroads and Shell Oil for future response costs at the Site in the respective percentages of 9% and 6% of the amounts incurred, according to proof, if necessary. The court retains jurisdiction over future remedies and remediation costs at the B & B Arvin facility. EPA and DTSC, respectively, shall recover a pro rata share of attorneys' fees in accordance with law and costs of suit. Judgment shall be entered by a separate document pursuant to Rule 58 of the Federal Rules of Civil Procedure and Local Rule 54-293 of the Eastern District of California.

The federal government attorneys shall propose a form of judgment consistent with these findings of fact and conclusions of law and lodge the proposed judgment with the court within five (5) days following the date of service of these findings.

SO ORDERED.

E.D.Cal., 2003.

U.S. v. Atchison, Topeka & Santa Fe Ry. Co.

Slip Copy, 2003 WL 25518047 (E.D.Cal.)

APPENDIX C

UNITED STATES CODE ANNOTATED
Effective: January 11, 2002

Title 42. The Public Health and Welfare
Chapter 103. Comprehensive Environmental Response, Compensation, and Liability
Subchapter I. Hazardous Substances Releases, Liability, Compensation

§ 9607. Liability

(a) Covered persons; scope; recoverable costs and damages; interest rate; "comparable maturity" date

Notwithstanding any other provision or rule of law, and subject only to the defenses set forth in subsection (b) of this section—

(1) the owner and operator of a vessel or a facility,

(2) any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of,

(3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substances, and

(4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, incineration vessels or sites

selected by such person, from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance, shall be liable for—

(A) all costs of removal or remedial action incurred by the United States Government or a State or an Indian tribe not inconsistent with the national contingency plan;

(B) any other necessary costs of response incurred by any other person consistent with the national contingency plan;

(C) damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from such a release; and

(D) the costs of any health assessment or health effects study carried out under section 9604(i) of this title.

The amounts recoverable in an action under this section shall include interest on the amounts recoverable under subparagraphs (A) through (D). Such interest shall accrue from the later of (i) the date payment of a specified amount is demanded in writing, or (ii) the date of the expenditure concerned. The rate of interest on the outstanding unpaid balance of the amounts recoverable under this section shall be the same rate as is specified for interest on investments of the Hazardous Substance Superfund established under subchapter A of chapter 98 of Title 26. For purposes of applying such amendments to interest under this subsection, the term "comparable maturity" shall be determined with reference to the date on which interest accruing under this subsection commences.